

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
REQUEST FOR FILING NATIONAL PHASE OF  
PCT APPLICATION UNDER 35 U.S.C. 371 AND 37 CFR 1.494 OR 1.495

To: Hon. Commissioner of Patents  
Washington, D.C. 20231

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TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)

Atty Dkt: 46 /168  
M# /Client Ref.

From: Manelli Dension & Selter:

Date: March 19, 2002

This is a **REQUEST** for **FILING** a PCT/USA National Phase Application based on:

1. International Application	2. International Filing Date	3. Earliest Priority Date Claimed
PCT/JP00/06514	22 September 2000	24 September 1999
↑ country code	Day MONTH Year	Day MONTH Year
		(use item 2 if no earlier priority)

Measured from the earliest priority date in item 3, this PCT/USA National Phase Application Request is being filed within:

(a) ☐ 20 months from above item 3 date (b) ☒ 30 months from above item 3 date,

(c) Therefore, the due date (unextendable) is 24 March 2002

5. Title of Invention: AROMATIC DIAMIDE DERIVATIVE OR SALT THEREOF, AGROHORTICULTURAL COMPOSITION AND METHOD FOR USE THEREOF

6. Inventor(s) Masanori TOHNISHI, Hayami HAKAO, Eiji KOHNO, Tateki NISHIDA, Takashi FURUYA, Toshiaki SHIMIZU, Akira SEO, Kazuyuki SAKATA, Shinsuke FUJIOKA and Hideo KANNO

Applicant herewith submits the following under 35 U.S.C. 371 to effect filing:

7. ☒ Please immediately start national examination procedures (35 U.S.C. 371 (f)).

8. ☐ A copy of the International Application as filed (35 U.S.C. 371(c)(2)) is transmitted herewith (file if in English but, if in foreign language, file only if not transmitted to PTO by the International Bureau) including:

- a. ☐ Request;
- b. ☐ Abstract;
- c. pgs. Spec. and Claims;
- d. sheet(s) Drawing which are ☐ informal ☐ formal of size ☐ A4 ☐ 11"

9. ☒ A copy of the International Application has been transmitted by the International Bureau.

10. A translation of the International Application into English (35 U.S.C. 371(c)(2))

- a. ☒ is transmitted herewith including: (1) ☐ Request; (2) ☒ Abstract;
- (3) 116 pgs. Spec. and Claims;
- (4) 0 sheet(s) Drawing which are: ☐ informal ☐ formal of size ☐ A4 ☐ 11"
- b. ☐ is not required, as the application was filed in English.
- c. ☐ is not herewith, but will be filed when required by the forthcoming PTO Missing Requirements Notice per Rule 494(c) if box 4(a) is X'd or Rule 495(c) if box 4(b) is X'd.
- d. ☐ Translation verification attached (not required now).

RE: USA National Filing Of PCT JP00/06514

JC10 Rec'd PCT/PTO 19 MAR 2002

11. ☒ **PLEASE AMEND** the specification before its first line by inserting as a separate paragraph:  
 a. ☒ --This application is the national phase of international application PCT/JP00/06514 filed 22 September 2000 which designated the U.S.--  
 b. ☐ --This application also claims the benefit of U.S. Provisional Application No. 60/\_\_\_\_\_, filed \_\_\_\_\_.
12. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)), i.e., **before 18th month from first priority date above in item 3, are transmitted herewith (file only if in English) including:**
13. ☒ PCT Article 19 claim amendments (if any) have been transmitted by the International Bureau
14. ☐ Translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)), i.e., of **claim amendments** made before 18th month, **is attached (required by 20th month from the date in item 3 if box 4(a) above is X'd, or 30th month if box 4(b) is X'd, or else amendments will be considered canceled).**
15. **A declaration of the inventor** (35 U.S.C. 371(c)(4))  
 a. ☒ is submitted herewith ☒ Original ☐ Facsimile/Copy  
 b. ☐ is not herewith, but will be filed when required by the forthcoming PTO Missing Requirements Notice per Rule 494(c) if box 4(a) is X'd or Rule 495(c) if box 4(b) is X'd.
16. **An International Search Report (ISR):**  
 a. Was prepared by ☐ European Patent Office ☒ Japanese Patent Office ☐ Other  
 b. ☒ has been transmitted by the international Bureau to PTO.  
 c. ☒ copy herewith (3 pg(s).) ☐ plus Annex of family members (\_\_\_\_ pg(s).).
17. **International Preliminary Examination Report (IPER):**  
 a. ☒ has been transmitted (if this letter is filed after 28 months from date in item 3) in English by the International Bureau with Annexes (if any) in original language.  
 b. ☒ copy herewith in English.  
 c.1 ☒ IPER Annex(es) in original language ("Annexes" are amendments made to claims/spec/drawings during Examination) including attached amended:  
 c.2 ☒ Specification/claim pages #77-102/1 claims # 1  
 Dwg Sheets #\_\_\_\_\_  
 d. ☒ Translation of Annex(es) to IPER **(required by 30<sup>th</sup> month due date, or else annexed amendments will be considered canceled).**
18. **Information Disclosure Statement** including:  
 a. ☒ Attached Form PTO-1449 listing documents  
 b. ☒ Attached copies of documents listed on Form PTO-1449  
 c. ☒ A concise explanation of relevance of ISR references is given in the ISR.
19. ☒ **Assignment** document and Cover Sheet for recording are attached. Please mail the recorded assignment document back to the person whose signature, name and address appear at the end of this letter.
20. ☐ Copy of Power to IA agent.
21. ☐ **Drawings** (complete only if 8d or 10a(4) not completed): \_\_\_\_ sheet(s) per set: ☐ 1 set informal; ☐ Formal of size ☐ A4 ☐ 11"
22. Small Entity Status ☒ is **Not** claimed ☐ is claimed (pre-filing confirmation required)  
 22(a) \_\_\_\_ (No.) Small Entity Statement(s) enclosed (since 9/8/00 Small Entity Statement(s) not essential to make claim)
23. **Priority** is hereby claimed under 35 U.S.C. 119/365 based on the priority claim and the certified copy, both filed in the International Application during the international stage based on the filing in (country) JAPAN of:  

Application No.		Filing Date	Application No.		Filing Date
(1)	JP 11-270582	24 September 1999	(2)	_____	_____
(3)	_____	_____	(4)	_____	_____
(5)	_____	_____	(6)	_____	_____

 a. ☒ See Form PCT/IB/304 sent to US/DO with copy of priority documents. If copy has not been received, please proceed promptly to obtain same from the IB.  
 b. ☒ Copy of Form PCT/IB/304 attached.

24. Attached: 1. Form PCT/IB/308  
2. Cover page of published international application WO 01/21576 (contains English Abstract)

25. **Preliminary Amendment:** ATTACHED 1. First Preliminary Amendment (enter prior to fee calculation)  
2. Second Preliminary Amendment

25.5 Per Item 17.c2, **cancel original** pages #\_\_\_\_, claims #\_\_\_\_, Drawing Sheets #\_\_\_\_

**26. Calculation of the U.S. National Fee (35 U.S.C. 371 (c)(1)) and other fees is as follows:**

Based on amended claim(s) per above item(s) ☐ 12, ☐ 14, ☐ 17, ☒ 25, ☐ 25.5 (hilit)

Total Effective Claims	11	minus 20 =	x \$18/\$9	= \$0	966/967
Independent Claims	1	minus 3 =	x \$84/\$42	= \$0	964/965
If any proper (ignore improper) Multiple Dependent claim is present,			add \$280/\$140	+0	968/969

BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(4)): →→ **BASIC FEE REQUIRED, NOW** →→→→

- A. If country code letters in item 1 are **not** "US", "BR", "BB", "TT", "MX", "IL", "NZ", "IN" or "ZA"

See item 16 re:

- |  |                  |         |
|--|------------------|---------|
| 1. Search Report was <u>not</u> prepared by EPO or JPO ----- | add \$1040/\$520 | 960/961 |
| 2. Search Report was prepared by EPO or JPO -----            | add \$890/\$445  | 970/971 |
|  | <u>+890.00</u>   |         |

**SKIP B, C, D AND E UNLESS country code letters in item 1 are "US", "BR", "BB", "TT", "MX", "IL", "NZ", "IN" or "ZA"**

- |  |                  |    |         |
|--|------------------|----|---------|
| → <input type="checkbox"/> B. If <u>USPTO</u> did not issue <u>both</u> International Search Report (ISR) <u>and</u> (if box 4(b) above is X'd) the International Examination Report (IPER), -----                       | add \$1040/\$520 | +0 | 960/961 |
| (only) <input type="checkbox"/> C. If <u>USPTO</u> issued ISR but not IPER (or box 4(a) above is X'd), -----   | add \$740/\$370  | +0 | 958/959 |
| (one) <input type="checkbox"/> D. If <u>USPTO</u> issued IPER but IPER Sec. V boxes <u>not all</u> 3 YES, -----  | add \$710/\$355  | +0 | 956/957 |
| (of) <input type="checkbox"/> E. If international preliminary examination fee was paid to <u>USPTO</u> and Rules 492(a)(4) and 496(b) <u>satisfied</u> (IPER Sec. V <u>all</u> 3 boxes YES for <u>all</u> claims), ----- | add \$100/\$50   | +0 | 962/963 |

- |     |   |                   |                 |
|-----|---|-------------------|-----------------|
| 27. | <b>SUBTOTAL =</b>   | <u>\$890.00</u>   |                 |
| 28. | If Assignment box 19 above is X'd, add Assignment Recording fee of ----\$40 | <u>+\$40.00</u>   | (581)           |
| 29. | Attached is a check to cover the -----                                      | <b>TOTAL FEES</b> | <u>\$930.00</u> |

Our Deposit Account No. 50-0687

Our Order No. 46 | 168

C# M#

**CHARGE STATEMENT:** The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 and 492 (missing or insufficient fee only) now or hereafter relative to this application and the resulting Official document under Rule 20, or credit any overpayment, to our Account/Order Nos. shown above for which purpose a duplicate copy of this sheet is attached.

This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal form is filed

**Manelli Denison & Selter**  
2000 M Street N.W., 7<sup>th</sup> Floor  
Washington, DC 20036

By Atty: **Paul E. White, Jr.**

Reg. No. **32,011**

Sig:

*Paul E. White, Jr.*

Fax: **202-887-0336**  
Tel: **202-261-1050**

Atty/Sec: /

**NOTE:** File in duplicate with 2 postcard receipts (PAT-103) & attachments.

10/088543

JC10 Rec'd FGI/PTO 1 9 MAR 2002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of

TOHNISHI et al.

Group Art Unit: Not Assigned

Appln. No.: Not Assigned

Examiner: Not Assigned

Filed: March 19, 2002

International Appln. No. PCT/JP00/06514

Title: AROMATIC DIAMIDE DERIVATIVE OR SALT THEREOF,  
AGROHORTICULTURAL COMPOSITION AND METHOD FOR  
USE THEREOF

\* \* \* \* \*

March 19, 2002

**FIRST PRELIMINARY AMENDMENT: TO BE ENTERED PRIOR  
TO CALCULATION OF FILING FEE**

Hon. Commissioner of Patents  
and Trademarks  
Washington, D.C. 20231

Sir:

Please enter the following Preliminary Amendment of the subject new  
application prior to calculation of the fee for filing the application.

**IN THE CLAIMS:**

Please amend claims 4 and 6 as follows (see the attached Appendix for the  
changes made to effect the below claims):

Claim 4. (Amended) An agrohorticultural composition characterized by  
containing, as an effective ingredient, an aromatic diamide derivative or a salt thereof  
according to claim 1.

Claim 6. (Amended) A method for using an agrohorticultural composition according to claim 4, characterized by applying the agrohorticultural composition to a target crop or soil in an effective amount to protect the crop or soil from pests.

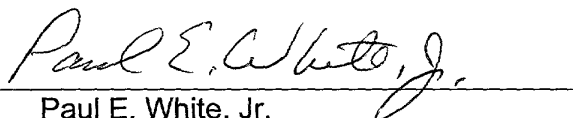
#### REMARKS

This Preliminary Amendment revises the multiple dependent claims to be single dependent claims and thus reduce the filing fee for the subject application. No new matter has been added.

Entry of this amendment and favorable consideration of this application are respectfully requested.

Respectfully submitted,

MANELLI DENISON & SELTER, PLLC

By 

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**APPENDIX SHOWING REVISIONS OF CLAIMS**

Proposed Amendments To Claims 4 and 6 Showing Deletions And Insertions.

Claim 4. (Amended) An agrohorticultural composition characterized by containing, as an effective ingredient, an aromatic diamide derivative or a salt thereof according to [any of claims 1 to 3] claim 1.

Claim 6. (Amended) A method for using an agrohorticultural composition according to claim 4 [or 5], characterized by applying the agrohorticultural composition to a target crop or soil in an effective amount to protect the crop or soil from pests.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of

TOHNISHI et al.

Group Art Unit: Not Assigned

Appln. No.: Not Assigned

Examiner: Not Assigned

Filed: March 19, 2002

International Appln. No. PCT/JP00/06514

Title: AROMATIC DIAMIDE DERIVATIVE OR SALT THEREOF,  
AGROHORTICULTURAL COMPOSITION AND METHOD FOR  
USE THEREOF

\* \* \* \* \*

March 19, 2002

**SECOND PRELIMINARY AMENDMENT:**

**TO BE ENTERED AFTER CALCULATION OF FILING FEE**

Hon. Commissioner of Patents  
and Trademarks  
Washington, D.C. 20231

Sir:

Please enter the following second Preliminary Amendment of the subject new application.

**IN THE SPECIFICATION:**

Please amend the specification as follows (see the attached Appendix for the changes made to effect the below changes):

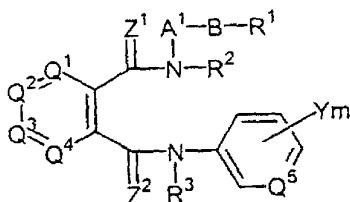
**Page 54, Table 1, compound No. 317, under column header "-A1-B-R<sup>1</sup>"**

CH(Me) CH=NOCH<sub>2</sub>CH=CHOEt

**IN THE CLAIMS:**

Please amend claim 1 as follows (see the attached Appendix for the changes made to effect the below claim):

Claim 1. (Amended) An aromatic diamide derivative represented by the following general formula (I) or a salt thereof:



{wherein A<sup>1</sup> is a (C<sub>1</sub>-C<sub>8</sub>)alkylene group; a substituted (C<sub>1</sub>-C<sub>8</sub>) alkylene group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups and phenyl group; a (C<sub>3</sub>-C<sub>8</sub>)-alkenylene group; a substituted (C<sub>3</sub>-C<sub>8</sub>)alkenylene group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups and phenyl group; a (C<sub>3</sub>-C<sub>8</sub>)alkynylene group; or a substituted (C<sub>3</sub>-C<sub>8</sub>)alkynylene group having one or more same or different



substituents selected from halogen atoms, cyano group, nitro group, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups and phenyl group;

in the (C<sub>1</sub>-C<sub>8</sub>)alkylene group, the substituted (C<sub>1</sub>-C<sub>8</sub>) alkylene group, the (C<sub>3</sub>-C<sub>8</sub>)alkenylene group, the substituted (C<sub>3</sub>-C<sub>8</sub>) alkenylene group, the (C<sub>3</sub>-C<sub>8</sub>)-alkynylene group or the substituted (C<sub>3</sub>-C<sub>8</sub>)alkynylene group, any saturated carbon atom may be substituted with a (C<sub>2</sub>-C<sub>5</sub>)alkylene group to form a (C<sub>3</sub>-C<sub>6</sub>)cycloalkane ring; further in the (C<sub>1</sub>-C<sub>8</sub>)alkylene group, the substituted (C<sub>1</sub>-C<sub>8</sub>) alkylene group, the (C<sub>3</sub>-C<sub>8</sub>)alkenylene group or the substituted (C<sub>3</sub>-C<sub>8</sub>) alkenylene group, any two carbon atoms may be combined with an alkylene group or an alkenylene group to form a (C<sub>3</sub>-C<sub>6</sub>)cycloalkane ring or a (C<sub>3</sub>-C<sub>6</sub>)cycloalkene ring;

B is -CO- or -C(=N-OR<sup>4</sup>)- (wherein R<sup>4</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group; or a substituted phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups);

R<sup>1</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group;

a (C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)alkylamino group wherein the two alkyl groups may be the same or different; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenylamino group; a substituted phenylamino group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyloxy group; a substituted phenyloxy group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl

groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a phenylthio group; a substituted phenylthio group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups;

R<sup>1</sup> may bond with A<sup>1</sup> to form a 4- to 7-membered ring which may contain, as a ring-constituting atom(s), one or two same or different atoms selected from oxygen, sulfur and nitrogen atoms;

R<sup>2</sup> and R<sup>3</sup> may be the same or different and are each a hydrogen atom, a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group or -A<sup>2</sup>-R<sup>5</sup> [wherein A<sup>2</sup> is -C(=O)-, -C(=S)-, -C(=NR<sup>6</sup>)- (wherein R<sup>6</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)-alkylamino group wherein the two alkyl groups may be the same or different; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; or a substituted phenyl group having one or more same or different substituents

selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups), a (C<sub>1</sub>-C<sub>8</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>8</sub>)alkylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>3</sub>-C<sub>6</sub>)alkynylene group;

(1) when A<sup>2</sup> is -C(=O)-, -C(=S)- or -C(=NR<sup>6</sup>)- (wherein R<sup>6</sup> has the same definition as given above), R<sup>5</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino

groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; or -A<sup>3</sup>-R<sup>7</sup> (wherein A<sup>3</sup> is -O-, -S- or -N(R<sup>8</sup>)- (wherein R<sup>8</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)-alkylcarbonyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylcarbonyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenylcarbonyl group; a substituted phenylcarbonyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a phenyl(C<sub>1</sub>-C<sub>4</sub>)alkoxycarbonyl group; or a substituted phenyl(C<sub>1</sub>-C<sub>4</sub>)alkoxycarbonyl group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups); and R<sup>7</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkylcarbonyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylcarbonyl group; a (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy

groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group; a substituted phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups);

(2) when A<sup>2</sup> is a (C<sub>1</sub>-C<sub>8</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>8</sub>)alkylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>3</sub>-C<sub>6</sub>)alkynylene group, R<sup>5</sup> is a hydrogen atom; a halogen atom; a cyano group; a nitro group; a (C<sub>3</sub>-C<sub>6</sub>)-cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or

more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>4</sup>-R<sup>9</sup> (wherein A<sup>4</sup> is -O-, -S-, -SO-, -SO<sub>2</sub>-, -N(R<sup>8</sup>)- (R<sup>8</sup> has the same definition as given above), -C(=O)- or -C(=NOR<sup>4</sup>)- (R<sup>4</sup> has the same definition as given above);

(i) when A<sup>4</sup> is -O-, -S-, -SO-, -SO<sub>2</sub>- or -N(R<sup>8</sup>)- (R<sup>8</sup> has the same definition as given above), R<sup>9</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkylcarbonyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)-alkylcarbonyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-

C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group; a substituted phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups;

(ii) when A<sup>4</sup> is -C(=O)- or -C(=N-OR<sup>4</sup>)- (R<sup>4</sup> has the same definition as given above), R<sup>9</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group;



a di(C<sub>1</sub>-C<sub>6</sub>)alkylamino group wherein the two alkyl groups may be the same or different; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenylamino group; a substituted phenylamino group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyloxy group; a substituted phenyloxy group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenylthio group; a substituted phenylthio group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro

group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups)];

R<sup>2</sup> may bond with A<sup>1</sup> or R<sup>1</sup> to form a 4- to 7-membered ring which may contain, as a ring-constituting atom(s), one or two same or different atoms selected from oxygen, sulfur and nitrogen atoms;

Q<sup>1</sup> to Q<sup>4</sup> may be the same or different and are each a nitrogen atom or a carbon atom which may be substituted with X, and X may be the same or different, and is a halogen atom; a cyano group; a nitro group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-

C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; or -A<sup>5</sup>-R<sup>10</sup> [wherein A<sup>5</sup> is -O-, -S-, -SO-, -SO<sub>2</sub>-, -C(=O)-, -C(=NOR<sup>4</sup>)- (R<sup>4</sup> has the same definition as given above), a (C<sub>1</sub>-C<sub>6</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>6</sub>)alkylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a C<sub>2</sub>-C<sub>6</sub>alkynylene group or a halo(C<sub>2</sub>-C<sub>6</sub>)alkynylene group;

(1) when A<sup>5</sup> is -O-, -S-, -SO- or -SO<sub>2</sub>-, R<sup>10</sup> is a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkenyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl

groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>6</sup>-R<sup>11</sup> (wherein A<sup>6</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>6</sub>)-alkylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>3</sub>-C<sub>6</sub>)-alkenylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>3</sub>-C<sub>6</sub>)alkynylene group, and R<sup>11</sup> is a hydrogen atom; a halogen atom; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)-cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>7</sup>-R<sup>12</sup> (wherein A<sup>7</sup> is -O-, -S-, -SO- or -SO<sub>2</sub>-, and R<sup>12</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl

groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups));

(2) when A<sup>5</sup> is -C(=O)- or -C(=NOR<sup>4</sup>)- (R<sup>4</sup> has the same definition as given above), R<sup>10</sup> is a (C<sub>1</sub>-C<sub>6</sub>)-alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)alkylamino group wherein the two alkyl groups may be the same or different; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a phenylamino group; a substituted phenylamino group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups,

halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)-alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups;

(3) when A<sup>5</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>6</sub>)alkylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>2</sub>-C<sub>6</sub>)alkynylene group, R<sup>10</sup> is a hydrogen atom; a halogen atom; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy

groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; or -A<sup>8</sup>-R<sup>13</sup> (wherein A<sup>8</sup> is -O-, -S-, -SO- or -SO<sub>2</sub>-, and R<sup>13</sup> is a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; or -A<sup>9</sup>-R<sup>14</sup> (wherein A<sup>9</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>6</sub>)alkylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>3</sub>-C<sub>5</sub>)alkynylene group, and R<sup>14</sup> is a hydrogen atom; a halogen atom; a (C<sub>3</sub>-C<sub>6</sub>)-cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a

(C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyloxy group; a substituted phenyloxy group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)-alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenylthio group; a substituted phenylthio group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group



having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups)]];

the two Xs bonding to the adjacent two carbon atoms constituting the aromatic ring containing Q<sup>1</sup> to Q<sup>4</sup> may bond to each other to form a condensed ring; the condensed ring may have one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups;

Q<sup>5</sup> is a nitrogen atom or a carbon atom;

Y may be the same or different, and is a halogen atom; a cyano group; a nitro group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same

or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>5</sup>-R<sup>10</sup> (A<sup>5</sup> and R<sup>10</sup> each have the same definition as given above);

the two Ys bonding to the adjacent two carbon atoms constituting the aromatic ring containing Q<sup>5</sup> may bond to each other to form a condensed ring; the condensed ring may have one or more same or different substituents selected from halogen atoms, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, phenyl group, substituted phenyl groups having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups, heterocyclic groups, and substituted heterocyclic groups having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy

groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups;

m is an integer of 0 to 5;

Z<sup>1</sup> and Z<sup>2</sup> may be the same or different and are each an oxygen atom or a sulfur atom;

provided that (1) when each of Q<sup>1</sup>, Q<sup>2</sup>, Q<sup>3</sup>, Q<sup>4</sup> and Q<sup>5</sup> simultaneously represents a carbon atom, each of R<sup>2</sup> and R<sup>3</sup> simultaneously represents a hydrogen atom, each of Z<sup>1</sup> and Z<sup>2</sup> simultaneously represents an oxygen atom, X is an iodine atom, m is an integer of 2, Y is 2-methyl group or 4-pentafluoroethyl group, A<sup>1</sup> is -CH<sub>2</sub>CH<sub>2</sub>- and B is -CO-; then R<sup>1</sup> is not an ethoxy group;

(2) when each of Q<sup>1</sup>, Q<sup>2</sup>, Q<sup>3</sup>, Q<sup>4</sup> and Q<sup>5</sup> simultaneously represents a carbon atom, each of R<sup>2</sup> and R<sup>3</sup> simultaneously represents a hydrogen atom, each of Z<sup>1</sup> and Z<sup>2</sup> simultaneously represents an oxygen atom, X is an iodine atom, m is an integer of 2, Y is 2-methyl group or 4-heptafluoroisopropyl group, A<sup>1</sup> is -CH<sub>2</sub>CH<sub>2</sub>- and B is -CO-; then R<sup>1</sup> is not an ethoxy group;

(3) when Q<sup>1</sup> represents a nitrogen atom, each of Q<sup>2</sup>, Q<sup>3</sup>, Q<sup>4</sup> and Q<sup>5</sup> simultaneously represents a carbon atom which does not have a substituent, each of R<sup>2</sup> and R<sup>3</sup> simultaneously represents a hydrogen atom, each of Z<sup>1</sup> and Z<sup>2</sup> simultaneously represents an oxygen atom, m is an integer of 2, Y is 2-methyl group or 3-chloro group, A<sup>1</sup> is -CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>- and B is -CO-; then R<sup>1</sup> is not an ethoxy group;

(4) when each of Q<sup>1</sup>, Q<sup>2</sup>, Q<sup>3</sup>, Q<sup>4</sup> and Q<sup>5</sup> simultaneously represents a carbon

atom which does not have a substituent, each of  $R^2$  and  $R^3$  simultaneously represents a hydrogen atom, each of  $Z^1$  and  $Z^2$  simultaneously represents an oxygen atom, m is an integer of 0,  $A^1$  is  $-\text{CHCH}_2\text{CH}_2-$  and B is  $-\text{CO}-$ ;

$\text{COOCH}_3$

|

then  $R^1$  is not a methoxy group}.

### REMARKS

This Preliminary Amendment amends the specification to correct a clerical error in Table 1 at page 54. The clerical nature of the error and the correction thereof is clear from the knowledge of a person of ordinary skill in the art and the context of the application.

Additionally, claim 1 has been amended as amended February 2, 2001, during the International Phase under PCT Article 34. In this amendment and as shown above, provisos (1), (2), (3) and (4) were added to the end of claim 1.

Entry of the above amendments and favorable consideration of this application are respectfully requested.

Respectfully submitted,

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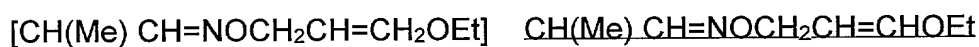
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## APPENDIX SHOWING REVISIONS OF CLAIMS AND SPECIFICATION

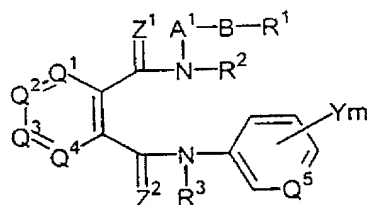
### Proposed Amendments To Specification Showing Deletions And Insertions.

Page 54, Table 1, compound No. 317, under column header “-A1-B-R<sup>1</sup>”



### Proposed Amendments To Claim 1 Showing Deletions And Insertions.

Claim 1. (Amended) An aromatic diamide derivative represented by the following general formula (I) or a salt thereof:



{wherein A<sup>1</sup> is a (C<sub>1</sub>-C<sub>8</sub>)alkylene group; a substituted (C<sub>1</sub>-C<sub>8</sub>) alkylene group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups and phenyl group; a (C<sub>3</sub>-C<sub>8</sub>)-alkenylene group; a substituted (C<sub>3</sub>-

C<sub>8</sub>)alkenylene group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups and phenyl group; a (C<sub>3</sub>-C<sub>8</sub>)alkynylene group; or a substituted (C<sub>3</sub>-C<sub>8</sub>)alkynylene group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups and phenyl group;

in the (C<sub>1</sub>-C<sub>8</sub>)alkylene group, the substituted (C<sub>1</sub>-C<sub>8</sub>) alkylene group, the (C<sub>3</sub>-C<sub>8</sub>)alkenylene group, the substituted (C<sub>3</sub>-C<sub>8</sub>) alkenylene group, the (C<sub>3</sub>-C<sub>8</sub>)-alkynylene group or the substituted (C<sub>3</sub>-C<sub>8</sub>)alkynylene group, any saturated carbon atom may be substituted with a (C<sub>2</sub>-C<sub>5</sub>)alkylene group to form a (C<sub>3</sub>-C<sub>6</sub>)cycloalkane ring; further in the (C<sub>1</sub>-C<sub>8</sub>)alkylene group, the substituted (C<sub>1</sub>-C<sub>8</sub>) alkylene group, the (C<sub>3</sub>-C<sub>8</sub>)alkenylene group or the substituted (C<sub>3</sub>-C<sub>8</sub>) alkenylene group, any two carbon atoms may be combined with an alkylene group or an alkenylene group to form a (C<sub>3</sub>-C<sub>6</sub>)cycloalkane ring or a (C<sub>3</sub>-C<sub>6</sub>)cycloalkene ring;

B is -CO- or -C(=N-OR<sup>4</sup>)- (wherein R<sup>4</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group; or a substituted phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro

group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups);

R<sup>1</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)alkylamino group wherein the two alkyl groups may be the same or different; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a phenylamino group; a substituted phenylamino group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may

be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyloxy group; a substituted phenyloxy group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a phenylthio group; a substituted phenylthio group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups;

R<sup>1</sup> may bond with A<sup>1</sup> to form a 4- to 7-membered ring which may contain, as a ring-constituting atom(s), one or two same or different atoms selected



from oxygen, sulfur and nitrogen atoms;

$R^2$  and  $R^3$  may be the same or different and are each a hydrogen atom, a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group or -A<sup>2</sup>-R<sup>5</sup> [wherein A<sup>2</sup> is -C(=O)-, -C(=S)-, -C(=NR<sup>6</sup>)- (wherein R<sup>6</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)-alkylamino group wherein the two alkyl groups may be the same or different; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; or a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups), a (C<sub>1</sub>-C<sub>8</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>8</sub>)alkylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>3</sub>-C<sub>6</sub>)alkynylene group;

(1) when A<sup>2</sup> is -C(=O)-, -C(=S)- or -C(=NR<sup>6</sup>)- (wherein R<sup>6</sup> has the same definition as given above), R<sup>5</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)-alkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino

groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; or -A<sup>3</sup>-R<sup>7</sup> (wherein A<sup>3</sup> is -O-, -S- or -N(R<sup>8</sup>)- (wherein R<sup>8</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)-alkylcarbonyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylcarbonyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenylcarbonyl group; a substituted phenylcarbonyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a phenyl(C<sub>1</sub>-C<sub>4</sub>)alkoxycarbonyl group; or a substituted phenyl(C<sub>1</sub>-C<sub>4</sub>)alkoxycarbonyl group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may

be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups); and R<sup>7</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkylcarbonyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylcarbonyl group; a (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group; a substituted phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino

groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups);

(2) when A<sup>2</sup> is a (C<sub>1</sub>-C<sub>8</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>8</sub>)alkylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>3</sub>-C<sub>6</sub>)alkynylene group, R<sup>5</sup> is a hydrogen atom; a halogen atom; a cyano group; a nitro group; a (C<sub>3</sub>-C<sub>6</sub>)-cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>4</sup>-R<sup>9</sup> (wherein A<sup>4</sup> is -O-, -S-, -SO-, -SO<sub>2</sub>-, -N(R<sup>8</sup>)- (R<sup>8</sup> has the same definition as given above), -C(=O)- or -C(=NOR<sup>4</sup>)- (R<sup>4</sup> has the same definition as given above);

(i) when A<sup>4</sup> is -O-, -S-, -SO-, -SO<sub>2</sub>- or -N(R<sup>8</sup>)- (R<sup>8</sup> has the same

definition as given above),  $R^9$  is a hydrogen atom; a  $(C_1-C_6)$ alkyl group; a halo( $C_1-C_6$ )alkyl group; a  $(C_3-C_6)$ alkenyl group; a halo( $C_3-C_6$ )alkenyl group; a  $(C_3-C_6)$ alkynyl group; a halo( $C_3-C_6$ )alkynyl group; a  $(C_3-C_6)$ cycloalkyl group; a halo( $C_3-C_6$ )cycloalkyl group; a  $(C_1-C_6)$ alkylcarbonyl group; a halo( $C_1-C_6$ )-alkylcarbonyl group; a  $(C_1-C_6)$ alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group,  $(C_1-C_6)$ alkyl groups, halo( $C_1-C_6$ )alkyl groups,  $(C_1-C_6)$ alkoxy groups, halo( $C_1-C_6$ )alkoxy groups,  $(C_1-C_6)$ alkylthio groups, halo( $C_1-C_6$ )alkylthio groups,  $(C_1-C_6)$ alkylsulfinyl groups, halo( $C_1-C_6$ )alkylsulfinyl groups,  $(C_1-C_6)$ alkylsulfonyl groups, halo( $C_1-C_6$ )alkylsulfonyl groups, mono( $C_1-C_6$ )alkylamino groups, di( $C_1-C_6$ )alkylamino groups wherein the two alkyl groups may be the same or different, and  $(C_1-C_6)$ alkoxycarbonyl groups; a phenyl( $C_1-C_4$ )alkyl group; a substituted phenyl( $C_1-C_4$ )alkyl group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group,  $(C_1-C_6)$ alkyl groups, halo( $C_1-C_6$ )alkyl groups,  $(C_1-C_6)$ alkoxy groups, halo( $C_1-C_6$ )alkoxy groups,  $(C_1-C_6)$ alkylthio groups, halo( $C_1-C_6$ )alkylthio groups,  $(C_1-C_6)$ alkylsulfinyl groups, halo( $C_1-C_6$ )alkylsulfinyl groups,  $(C_1-C_6)$ alkylsulfonyl groups, halo( $C_1-C_6$ )alkylsulfonyl groups, mono( $C_1-C_6$ )alkylamino groups, di( $C_1-C_6$ )alkylamino groups wherein the two alkyl groups may be the same or different, and  $(C_1-C_6)$ alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group,  $(C_1-C_6)$ alkyl groups, halo( $C_1-C_6$ )alkyl groups,  $(C_1-C_6)$ -alkoxy groups, halo( $C_1-C_6$ )alkoxy groups,  $(C_1-C_6)$ alkylthio groups, halo( $C_1-C_6$ )alkylthio groups,  $(C_1-C_6)$ alkylsulfinyl groups, halo( $C_1-C_6$ )alkylsulfinyl groups,  $(C_1-C_6)$ -alkylsulfonyl groups, halo( $C_1-C_6$ )alkylsulfonyl groups, mono( $C_1-C_6$ )alkylamino groups, di( $C_1-C_6$ )alkylamino groups

wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups;

(ii) when A<sup>4</sup> is -C(=O)- or -C(=N-OR<sup>4</sup>)- (R<sup>4</sup> has the same definition as given above), R<sup>9</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)alkylamino group wherein the two alkyl groups may be the same or different; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenylamino group; a substituted phenylamino group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyloxy group; a substituted phenyloxy group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-

(C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenylthio group; a substituted phenylthio group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups]];

R<sup>2</sup> may bond with A<sup>1</sup> or R<sup>1</sup> to form a 4- to 7-membered ring which may contain, as a ring-constituting atom(s), one or two same or different atoms selected from oxygen, sulfur and nitrogen atoms;

Q<sup>1</sup> to Q<sup>4</sup> may be the same or different and are each a nitrogen atom or a carbon atom which may be substituted with X, and X may be the same or different,

and is a halogen atom; a cyano group; a nitro group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>5</sup>-R<sup>10</sup> [wherein A<sup>5</sup> is -O-, -S-, -SO-, -SO<sub>2</sub>-, -C(=O)-, -C(=NOR<sup>4</sup>)- (R<sup>4</sup> has the same definition as given above), a (C<sub>1</sub>-C<sub>6</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>6</sub>)alkylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a C<sub>2</sub>-C<sub>6</sub>alkynylene group or a halo(C<sub>2</sub>-C<sub>6</sub>)alkynylene group;

(1) when A<sup>5</sup> is -O-, -S-, -SO- or -SO<sub>2</sub>-, R<sup>10</sup> is a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkenyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)-



alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>6</sup>-R<sup>11</sup> (wherein A<sup>6</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>6</sub>)-alkylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>3</sub>-C<sub>6</sub>)-alkenylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>3</sub>-C<sub>6</sub>)alkynylene group, and R<sup>11</sup> is a hydrogen atom; a halogen atom; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)-cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>7</sup>-R<sup>12</sup> (wherein A<sup>7</sup> is -O-, -S-, -SO- or -SO<sub>2</sub>-, and R<sup>12</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a halo(C<sub>3</sub>-

C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups));

(2) when A<sup>5</sup> is -C(=O)- or -C(=NOR<sup>4</sup>)- (R<sup>4</sup> has the same definition as given above), R<sup>10</sup> is a (C<sub>1</sub>-C<sub>6</sub>)-alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)alkylamino group wherein the two alkyl groups may be the same or different; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl

groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a phenylamino group; a substituted phenylamino group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)-alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups;

(3) when A<sup>5</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>6</sub>)alkylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>2</sub>-C<sub>6</sub>)alkynylene group, R<sup>10</sup> is a hydrogen atom; a halogen atom; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups,

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$C_6$ )alkylsulfonyl groups, halo( $C_1$ - $C_6$ )alkylsulfonyl groups, mono( $C_1$ - $C_6$ )alkylamino groups, di( $C_1$ - $C_6$ )alkylamino groups wherein the two alkyl groups may be the same or different, and ( $C_1$ - $C_6$ )-alkoxycarbonyl groups; or  $-A^9-R^{14}$  (wherein  $A^9$  is a ( $C_1$ - $C_6$ )alkylene group, a halo( $C_1$ - $C_6$ )alkylene group, a ( $C_2$ - $C_6$ )alkenylene group, a halo( $C_2$ - $C_6$ )alkenylene group, a ( $C_2$ - $C_6$ )alkynylene group or a halo( $C_3$ - $C_5$ )alkynylene group, and  $R^{14}$  is a hydrogen atom; a halogen atom; a ( $C_3$ - $C_6$ )-cycloalkyl group; a halo( $C_3$ - $C_6$ )cycloalkyl group; a ( $C_1$ - $C_6$ )alkoxy group; a halo( $C_1$ - $C_6$ )alkoxy group; a ( $C_1$ - $C_6$ )alkylthio group; a halo( $C_1$ - $C_6$ )alkylthio group; a ( $C_1$ - $C_6$ )alkylsulfinyl group; a halo( $C_1$ - $C_6$ )alkylsulfinyl group; a ( $C_1$ - $C_6$ )alkylsulfonyl group; a halo( $C_1$ - $C_6$ )alkylsulfonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, ( $C_1$ - $C_6$ )alkyl groups, halo( $C_1$ - $C_6$ )alkyl groups, ( $C_1$ - $C_6$ )-alkoxy groups, halo( $C_1$ - $C_6$ )alkoxy groups, ( $C_1$ - $C_6$ )alkylthio groups, halo( $C_1$ - $C_6$ )alkylthio groups, ( $C_1$ - $C_6$ )alkylsulfinyl groups, halo( $C_1$ - $C_6$ )alkylsulfinyl groups, ( $C_1$ - $C_6$ )-alkylsulfonyl groups, halo( $C_1$ - $C_6$ )alkylsulfonyl groups, mono( $C_1$ - $C_6$ )alkylamino groups, di( $C_1$ - $C_6$ )alkylamino groups wherein the two alkyl groups may be the same or different, and ( $C_1$ - $C_6$ )alkoxycarbonyl groups; a phenyloxy group; a substituted phenyloxy group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, ( $C_1$ - $C_6$ )alkyl groups, halo( $C_1$ - $C_6$ )alkyl groups, ( $C_1$ - $C_6$ )alkoxy groups, halo( $C_1$ - $C_6$ )alkoxy groups, ( $C_1$ - $C_6$ )alkylthio groups, halo( $C_1$ - $C_6$ )alkylthio groups, ( $C_1$ - $C_6$ )alkylsulfinyl groups, halo( $C_1$ - $C_6$ )alkylsulfinyl groups, ( $C_1$ - $C_6$ )alkylsulfonyl groups, halo( $C_1$ - $C_6$ )alkylsulfonyl groups, mono( $C_1$ - $C_6$ )-alkylamino groups, di( $C_1$ - $C_6$ )alkylamino groups wherein the two alkyl groups may be the same or different, and ( $C_1$ - $C_6$ )alkoxycarbonyl groups; a phenylthio group; a substituted phenylthio group having one or more same or

different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups]]];

the two Xs bonding to the adjacent two carbon atoms constituting the aromatic ring containing Q<sup>1</sup> to Q<sup>4</sup> may bond to each other to form a condensed ring; the condensed ring may have one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups;

Q<sup>5</sup> is a nitrogen atom or a carbon atom;

Y may be the same or different, and is a halogen atom; a cyano group;

a nitro group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>5</sup>-R<sup>10</sup> (A<sup>5</sup> and R<sup>10</sup> each have the same definition as given above);

the two Ys bonding to the adjacent two carbon atoms constituting the aromatic ring containing Q<sup>5</sup> may bond to each other to form a condensed ring; the condensed ring may have one or more same or different substituents selected from halogen atoms, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, phenyl group, substituted phenyl groups having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups,

halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups, heterocyclic groups, and substituted heterocyclic groups having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups;

m is an integer of 0 to 5;

Z<sup>1</sup> and Z<sup>2</sup> may be the same or different and are each an oxygen atom or a sulfur atom;

provided that (1) when each of Q<sup>1</sup>, Q<sup>2</sup>, Q<sup>3</sup>, Q<sup>4</sup> and Q<sup>5</sup> simultaneously represents a carbon atom, each of R<sup>2</sup> and R<sup>3</sup> simultaneously represents a hydrogen atom, each of Z<sup>1</sup> and Z<sup>2</sup> simultaneously represents an oxygen atom, X is an iodine atom, m is an integer of 2, Y is 2-methyl group or 4-pentafluoroethyl group, A<sup>1</sup> is -CH<sub>2</sub>CH<sub>2</sub>- and B is -CO-; then R<sup>1</sup> is not an ethoxy group;

(2) when each of Q<sup>1</sup>, Q<sup>2</sup>, Q<sup>3</sup>, Q<sup>4</sup> and Q<sup>5</sup> simultaneously represents a carbon atom, each of R<sup>2</sup> and R<sup>3</sup> simultaneously represents a hydrogen atom, each of Z<sup>1</sup> and Z<sup>2</sup> simultaneously represents an oxygen atom, X is an iodine atom, m is an integer of 2, Y is 2-methyl group or 4-heptafluoroisopropyl group, A<sup>1</sup> is -CH<sub>2</sub>CH<sub>2</sub>- and B is -CO-; then R<sup>1</sup> is not an ethoxy group;



(3) when  $Q^1$  represents a nitrogen atom, each of  $Q^2$ ,  $Q^3$ ,  $Q^4$  and  $Q^5$  simultaneously represents a carbon atom which does not have a substituent, each of  $R^2$  and  $R^3$  simultaneously represents a hydrogen atom, each of  $Z^1$  and  $Z^2$  simultaneously represents an oxygen atom, m is an integer of 2, Y is 2-methyl group or 3-chloro group,  $A^1$  is  $-\text{CH}_2\text{CH}_2\text{CH}_2-$  and B is  $-\text{CO}-$ ; then  $R^1$  is not an ethoxy group;

(4) when each of  $Q^1$ ,  $Q^2$ ,  $Q^3$ ,  $Q^4$  and  $Q^5$  simultaneously represents a carbon atom which does not have a substituent, each of  $R^2$  and  $R^3$  simultaneously represents a hydrogen atom, each of  $Z^1$  and  $Z^2$  simultaneously represents an oxygen atom, m is an integer of 0,  $A^1$  is  $-\text{CHCH}_2\text{CH}_2-$  and B is  $-\text{CO}-$ ;

$\text{COOCH}_3$

|

then  $R^1$  is not a methoxy group}.

(19) 世界知的所有権機関  
国際事務局



(43) 国際公開日  
2001年3月29日 (29.03.2001)

PCT

(10) 国際公開番号  
WO 01/21576 A1

(51) 国際特許分類<sup>7</sup>: C07C 233/83, 237/22,  
251/38, 317/28, 323/12, 323/41, C07D 213/75, 213/81,  
213/82, 239/28, A01N 37/22, 37/50, 43/40

(21) 国際出願番号: PCT/JP00/06514

(22) 国際出願日: 2000年9月22日 (22.09.2000)

(25) 国際出願の言語: 日本語

(26) 国際公開の言語: 日本語

(30) 優先権データ:  
特願平11/270582 1999年9月24日 (24.09.1999) JP

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(81) 指定国 (国内): AE, AG, AL, AM, AT, AU, AZ, BA, BB,  
BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM,  
DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,  
IN, IS, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV,  
MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT,  
RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA,  
UG, US, UZ, VN, YU, ZA, ZW.

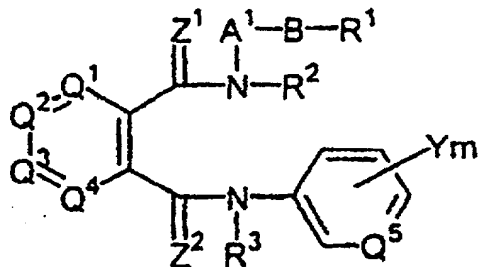
(84) 指定国 (広域): ARIPO 特許 (GH, GM, KE, LS, MW,  
MZ, SD, SL, SZ, TZ, UG, ZW), ユーラシア特許 (AM,  
AZ, BY, KG, KZ, MD, RU, TJ, TM), ヨーロッパ特許  
(AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT,  
LU, MC, NL, PT, SE), OAPI 特許 (BF, BJ, CF, CG, CI,  
CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

添付公開書類:  
— 国際調査報告書

2文字コード及び他の略語については、定期発行される  
各PCTガゼットの巻頭に掲載されている「コードと略語  
のガイダンスノート」を参照。

(54) Title: AROMATIC DIAMIDE DERIVATIVES OR SALTS THEREOF, AGRICULTURAL/HORTICULTURAL  
CHEMICALS AND METHOD OF USING THE SAME

(54) 発明の名称: 芳香族ジアミド誘導体又はその塩類及び農園芸用薬剤並びにその使用方法



(I)

(57) Abstract: Aromatic diamide derivatives  
represented by general formula (I) or salts thereof  
and agricultural/horticultural chemicals containing the  
same as the active ingredient, wherein A<sup>1</sup> represents  
alkylene, alkenylene or alkynylene; B represents, CO-  
or -C(=N-OR<sup>4</sup>)- (wherein R<sup>4</sup> represents H, etc.); R<sup>1</sup> to  
R<sup>3</sup> represent each H, etc.; Q<sup>1</sup> to Q<sup>5</sup> represent each N or  
carbon; Y represents halogeno, etc.; m is from 0 to 5; and  
Z<sup>1</sup> and Z<sup>2</sup> represent each O or S.

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WO 01/21576 A1

JC10 Rec'd PCT/PTO 19 MAR 2002

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## DESCRIPTION

AROMATIC DIAMIDE DERIVATIVE OR SALT THEREOF,  
AGROHORTICULTURAL COMPOSITION AND METHOD FOR  
USE THEREOF

## TECHNICAL FIELD

The present invention relates to an aromatic  
diamide derivative or a salt thereof; an agrohorti-  
cultural composition, particularly an agrohorticultural  
5 insecticide both containing the derivative or the salt  
as an effective ingredient; and a method for using the  
same.

## BACKGROUND ART

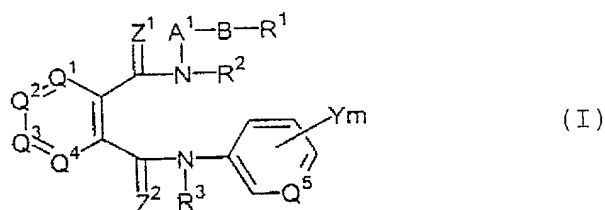
A compound similar to the aromatic diamide  
10 derivative represented by the general formula (I) of  
the present invention is disclosed in EP 919542 A2.

## DISCLOSURE OF THE INVENTION

The present inventors made an intensive study  
in order to develop a novel agrohorticultural  
15 composition, particularly an agrohorticultural  
insecticide and, as a result, found out that an  
aromatic diamide derivative represented by the general  
formula (I) or a salt thereof according to the present  
invention is a novel compound not described in any  
20 literature and is useful as an agrohorticultural  
composition, particularly as an agrohorticultural

insecticide. The present invention has been completed based on the above finding.

The present invention relates to an aromatic diamide derivative represented by the following general  
 5 formula (I) or a salt thereof; an agrohorticultural composition, particularly an agrohorticultural insecticide; and a method for using the insecticide:



{wherein  $A^1$  is a  $(C_1-C_8)$  alkylene group; a substituted  $(C_1-C_8)$  alkylene group having one or more same or  
 10 different substituents selected from halogen atoms, cyano group, nitro group, halo $(C_1-C_6)$  alkyl groups,  $(C_1-C_6)$  alkoxy groups, halo $(C_1-C_6)$  alkoxy groups,  $(C_1-C_6)$  alkylthio groups, halo $(C_1-C_6)$  alkylthio groups,  $(C_1-C_6)$  alkylsulfinyl groups, halo $(C_1-C_6)$  alkylsulfinyl groups,  
 15  $(C_1-C_6)$  alkylsulfonyl groups, halo $(C_1-C_6)$  alkylsulfonyl groups,  $(C_1-C_6)$  alkylthio $(C_1-C_6)$  alkyl groups,  $(C_1-C_6)$  alkoxycarbonyl groups and phenyl group; a  $(C_3-C_8)$  alkenylene group; a substituted  $(C_3-C_8)$  alkenylene group having one or more same or different substituents  
 20 selected from halogen atoms, cyano group, nitro group, halo $(C_1-C_6)$  alkyl groups,  $(C_1-C_6)$  alkoxy groups, halo $(C_1-C_6)$  alkoxy groups,  $(C_1-C_6)$  alkylthio groups,

halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups,  
halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl  
groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, (C<sub>1</sub>-C<sub>6</sub>)-  
alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl  
5 groups and phenyl group; a (C<sub>3</sub>-C<sub>8</sub>)alkynylene group; or a  
substituted (C<sub>3</sub>-C<sub>8</sub>)alkynylene group having one or more  
same or different substituents selected from halogen  
atoms, cyano group, nitro group, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl  
groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups,  
10 (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups,  
(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl  
groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-  
C<sub>6</sub>)alkylsulfonyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl  
groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups and phenyl group;  
15 in the (C<sub>1</sub>-C<sub>8</sub>)alkylene group, the substituted  
(C<sub>1</sub>-C<sub>8</sub>) alkylene group, the (C<sub>3</sub>-C<sub>8</sub>)alkenylene group, the  
substituted (C<sub>3</sub>-C<sub>8</sub>) alkenylene group, the (C<sub>3</sub>-C<sub>8</sub>)-  
alkynylene group or the substituted (C<sub>3</sub>-C<sub>8</sub>)alkynylene  
group, any saturated carbon atom may be substituted  
20 with a (C<sub>2</sub>-C<sub>5</sub>)alkylene group to form a (C<sub>3</sub>-C<sub>6</sub>)cycloalkane  
ring; further in the (C<sub>1</sub>-C<sub>8</sub>)alkylene group, the  
substituted (C<sub>1</sub>-C<sub>8</sub>) alkylene group, the (C<sub>3</sub>-C<sub>8</sub>)alkenylene  
group or the substituted (C<sub>3</sub>-C<sub>8</sub>) alkenylene group, any  
two carbon atoms may be combined with an alkylene group  
25 or an alkenylene group to form a (C<sub>3</sub>-C<sub>6</sub>)cycloalkane ring  
or a (C<sub>3</sub>-C<sub>6</sub>)cycloalkene ring;

B is -CO- or -C(=N-OR<sup>4</sup>)- (wherein R<sup>4</sup> is a  
hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl

- group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group; or a substituted phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group having, on the ring, one or more same or
- 5 different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-
- 10 alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups);
- 15           R<sup>1</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a
- 20 halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)alkylamino group wherein the two alkyl groups may be the same or different; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms,
- 25 cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-

alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-

5 alkoxy carbonyl groups; a phenylamino group; a substituted phenylamino group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups,

10 halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein

15 the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxy carbonyl groups; a phenyloxy group; a substituted phenyloxy group having one or more same or different substituents selected from halogen atoms, cyano groups, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy

20 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl

25 groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxy carbonyl groups; a phenylthio group; a substituted phenylthio group having one or more same or

different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups;

R<sup>1</sup> may bond with A<sup>1</sup> to form a 4- to 7-membered ring which may contain, as a ring-constituting atom(s), one or two same or different atoms selected from oxygen, sulfur and nitrogen atoms;

R<sup>2</sup> and R<sup>3</sup> may be the same or different and are each a hydrogen atom, a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group or -A<sup>2</sup>-R<sup>5</sup> [wherein A<sup>2</sup> is -C(=O)-, -C(=S)-, -C(=NR<sup>6</sup>)- (wherein R<sup>6</sup> is



a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)alkylamino group wherein the two alkyl groups may be the same or different; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; or a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups), a (C<sub>1</sub>-C<sub>8</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>8</sub>)alkylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>3</sub>-C<sub>6</sub>)alkynylene group;

(1) when A<sup>2</sup> is -C(=O)-, -C(=S)- or -C(=NR<sup>6</sup>)- (wherein R<sup>6</sup> has the same definition as given above), R<sup>5</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio

groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-  
 alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups,  
 halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino  
 groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl  
 5 groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-  
 alkoxy carbonyl groups; a heterocyclic group; a  
 substituted heterocyclic group having one or more same  
 or different substituents selected from halogen atoms,  
 cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-  
 10 C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy  
 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio  
 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-  
 alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups,  
 halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino  
 15 groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl  
 groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-  
 alkoxy carbonyl groups; or -A<sup>3</sup>-R<sup>7</sup> (wherein A<sup>3</sup> is -O-, -S-  
 or -N(R<sup>8</sup>)- (wherein R<sup>8</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)-  
 alkylcarbonyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylcarbonyl group; a  
 20 (C<sub>1</sub>-C<sub>6</sub>)alkoxy carbonyl group; a phenylcarbonyl group; a  
 substituted phenylcarbonyl group having one or more  
 same or different substituents selected from halogen  
 atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups,  
 halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-  
 25 C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-  
 C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups,  
 halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl  
 groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)-

alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein  
 the two alkyl groups may be the same or different, and  
 (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyl(C<sub>1</sub>-C<sub>4</sub>)-  
 alkoxycarbonyl group; or a substituted phenyl(C<sub>1</sub>-C<sub>4</sub>)-  
 5 alkoxycarbonyl group having, on the ring, one or more  
 same or different substituents selected from halogen  
 atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups,  
 halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-  
 C<sub>6</sub>)-alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-  
 10 C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups,  
 halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl  
 groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)-  
 alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein  
 the two alkyl groups may be the same or different, and  
 15 (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups); and R<sup>7</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkyl  
 group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group;  
 a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a  
 halo(C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a  
 halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkylcarbonyl  
 20 group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylcarbonyl group; a (C<sub>1</sub>-C<sub>6</sub>)-  
 alkoxycarbonyl group; a phenyl group; a substituted  
 phenyl group having one or more same or different  
 substituents selected from halogen atoms, cyano group,  
 nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl  
 25 groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups,  
 (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups,  
 (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl  
 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-

alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group; a substituted

5 phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups,

10 halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and

15 (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy

20 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl

25 groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups);

(2) when A<sup>2</sup> is a (C<sub>1</sub>-C<sub>8</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>8</sub>)alkylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a

halo(C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>3</sub>-C<sub>6</sub>)alkynylene group, R<sup>5</sup> is a hydrogen atom; a halogen atom; a cyano group; a nitro group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a

5 (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy

10 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl

15 groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-

20 C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino

25 groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; or -A<sup>4</sup>-R<sup>9</sup> (wherein A<sup>4</sup> is -O-, -S-, -SO-, -SO<sub>2</sub>-, -N(R<sup>9</sup>)- (R<sup>9</sup> has the same definition as given

above),  $-C(=O)-$  or  $-C(=NOR^4)-$  ( $R^4$  has the same definition as given above);

- (i) when  $A^4$  is  $-O-$ ,  $-S-$ ,  $-SO-$ ,  $-SO_2-$  or  $-N(R^8)-$  ( $R^8$  has the same definition as given above),  $R^9$  is a
- 5 hydrogen atom; a  $(C_1-C_6)$ alkyl group; a halo $(C_1-C_6)$ alkyl group; a  $(C_3-C_6)$ alkenyl group; a halo $(C_3-C_6)$ alkenyl group; a  $(C_3-C_6)$ alkynyl group; a halo $(C_3-C_6)$ alkynyl group; a  $(C_3-C_6)$ cycloalkyl group; a halo $(C_3-C_6)$ cycloalkyl group; a  $(C_1-C_6)$ alkylcarbonyl group; a halo $(C_1-C_6)$ -
  - 10 alkylcarbonyl group; a  $(C_1-C_6)$ alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group,  $(C_1-C_6)$ alkyl groups, halo $(C_1-C_6)$ alkyl groups,  $(C_1-C_6)$ alkoxy groups,
  - 15 halo $(C_1-C_6)$ alkoxy groups,  $(C_1-C_6)$ alkylthio groups, halo $(C_1-C_6)$ alkylthio groups,  $(C_1-C_6)$ alkylsulfinyl groups, halo $(C_1-C_6)$ alkylsulfinyl groups,  $(C_1-C_6)$ alkylsulfonyl groups, halo $(C_1-C_6)$ alkylsulfonyl groups, mono $(C_1-C_6)$ -alkylamino groups, di $(C_1-C_6)$ alkylamino groups wherein
  - 20 the two alkyl groups may be the same or different, and  $(C_1-C_6)$ alkoxycarbonyl groups; a phenyl $(C_1-C_4)$ alkyl group; a substituted phenyl $(C_1-C_4)$ alkyl group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group,
  - 25  $(C_1-C_6)$ alkyl groups, halo $(C_1-C_6)$ alkyl groups,  $(C_1-C_6)$ -alkoxy groups, halo $(C_1-C_6)$ alkoxy groups,  $(C_1-C_6)$ alkylthio groups, halo $(C_1-C_6)$ alkylthio groups,  $(C_1-C_6)$ alkylsulfinyl groups, halo $(C_1-C_6)$ alkylsulfinyl groups,  $(C_1-C_6)$ -

alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a

5 heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio

10 groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or

15 different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups;

(ii) when A<sup>4</sup> is -C(=O)- or -C(=N-OR<sup>4</sup>)- (R<sup>4</sup> has the same definition as given above), R<sup>9</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-

20 C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)alkylamino group wherein the two alkyl groups may be the same or

25 different; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)-

alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups,

5 mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenylamino group; a substituted phenylamino group having, on the ring, one or more same or different

10 substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl

15 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyloxy group; a substituted phenyloxy

20 group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl

25 groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or



- different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenylthio group; a substituted phenylthio group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group,
- 5 nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-
- 10 alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different
- 15 substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl
- 20 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups)];
- 25 R<sup>2</sup> may bond with A<sup>1</sup> or R<sup>1</sup> to form a 4- to 7-membered ring which may contain, as a ring-constituting atom(s), one or two same or different atoms selected from oxygen, sulfur and nitrogen atoms;

$Q^1$  to  $Q^4$  may be the same or different and are each a nitrogen atom or a carbon atom which may be substituted with X, and X may be the same or different, and is a halogen atom; a cyano group; a nitro group; a  
 5 (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-  
 10 C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino  
 15 groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms,  
 20 cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups,  
 25 halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; or -A<sup>5</sup>-R<sup>10</sup> [wherein A<sup>5</sup> is -O-,

-S-, -SO-, -SO<sub>2</sub>-, -C(=O)-, -C(=NOR<sup>4</sup>)- (R<sup>4</sup> has the same definition as given above), a (C<sub>1</sub>-C<sub>6</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>6</sub>)alkylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkynylene group or  
 5 a halo(C<sub>2</sub>-C<sub>6</sub>)alkynylene group;

(1) when A<sup>5</sup> is -O-, -S-, -SO- or -SO<sub>2</sub>-, R<sup>10</sup> is a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkenyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents  
 10 selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)-  
 15 alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group  
 20 having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl  
 25 groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or

- different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>6</sup>-R<sup>11</sup> (wherein A<sup>6</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>6</sub>)alkylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkynylene group or a
- 5 halo(C<sub>3</sub>-C<sub>6</sub>)alkynylene group, and R<sup>11</sup> is a hydrogen atom; a halogen atom; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from
- 10 halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl
- 15 groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>7</sup>-R<sup>12</sup> (wherein A<sup>7</sup> is -O-, -S-, -SO- or -SO<sub>2</sub>-, and R<sup>12</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkyl group;
- 20 a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl group; a substituted phenyl group having one or more same or
- 25 different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio

groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-  
 alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups,  
 halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino  
 groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl  
 5 groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-  
 alkoxy carbonyl groups; a heterocyclic group; or a  
 substituted heterocyclic group having one or more same  
 or different substituents selected from halogen atoms,  
 cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-  
 10 C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy  
 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio  
 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-  
 alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups,  
 halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino  
 15 groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl  
 groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-  
 alkoxy carbonyl groups));

(2) when A<sup>5</sup> is -C(=O)- or -C(=NOR<sup>4</sup>)- (R<sup>4</sup> has  
 the same definition as given above), R<sup>10</sup> is a (C<sub>1</sub>-C<sub>6</sub>)-  
 20 alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>2</sub>-C<sub>6</sub>)alkenyl  
 group; a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl  
 group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy  
 group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino  
 group; a di(C<sub>1</sub>-C<sub>6</sub>)alkylamino group wherein the two alkyl  
 25 groups may be the same or different; a phenyl group; a  
 substituted phenyl group having one or more same or  
 different substituents selected from halogen atoms,  
 cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-

- $C_6$ )alkyl groups,  $(C_1-C_6)$ alkoxy groups, halo( $C_1-C_6$ )alkoxy groups,  $(C_1-C_6)$ alkylthio groups, halo( $C_1-C_6$ )alkylthio groups,  $(C_1-C_6)$ alkylsulfinyl groups, halo( $C_1-C_6$ )-alkylsulfinyl groups,  $(C_1-C_6)$ alkylsulfonyl groups,
- 5 halo( $C_1-C_6$ )alkylsulfonyl groups, mono( $C_1-C_6$ )alkylamino groups, di( $C_1-C_6$ )alkylamino groups wherein the two alkyl groups may be the same or different, and  $(C_1-C_6)$ -alkoxycarbonyl groups; a phenylamino group; a substituted phenylamino group having, on the ring, one
- 10 or more same or different substituents selected from halogen atoms, cyano group, nitro group,  $(C_1-C_6)$ alkyl groups, halo( $C_1-C_6$ )alkyl groups,  $(C_1-C_6)$ alkoxy groups, halo( $C_1-C_6$ )alkoxy groups,  $(C_1-C_6)$ alkylthio groups, halo( $C_1-C_6$ )alkylthio groups,  $(C_1-C_6)$ alkylsulfinyl groups,
- 15 halo( $C_1-C_6$ )alkylsulfinyl groups,  $(C_1-C_6)$ alkylsulfonyl groups, halo( $C_1-C_6$ )alkylsulfonyl groups, mono( $C_1-C_6$ )-alkylamino groups, di( $C_1-C_6$ )alkylamino groups wherein the two alkyl groups may be the same or different, and  $(C_1-C_6)$ alkoxycarbonyl groups; a heterocyclic group; or a
- 20 substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group,  $(C_1-C_6)$ alkyl groups, halo( $C_1-C_6$ )alkyl groups,  $(C_1-C_6)$ alkoxy groups, halo( $C_1-C_6$ )alkoxy groups,  $(C_1-C_6)$ alkylthio groups, halo( $C_1-C_6$ )alkylthio
- 25 groups,  $(C_1-C_6)$ alkylsulfinyl groups, halo( $C_1-C_6$ )-alkylsulfinyl groups,  $(C_1-C_6)$ alkylsulfonyl groups, halo( $C_1-C_6$ )alkylsulfonyl groups, mono( $C_1-C_6$ )alkylamino groups, di( $C_1-C_6$ )alkylamino groups wherein the two alkyl

groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups;

- (3) when A<sup>5</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>6</sub>)alkylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>2</sub>-C<sub>6</sub>)alkynylene group, R<sup>10</sup> is a hydrogen atom; a halogen atom; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl

- groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; or -A<sup>8</sup>-R<sup>13</sup> (wherein A<sup>8</sup> is -O-, -S-, -SO- or -SO<sub>2</sub>-, and R<sup>13</sup> is a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl group; a
- 5 substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio
- 10 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-
- 15 alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy
- 20 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl
- 25 groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; or -A<sup>9</sup>-R<sup>14</sup> (wherein A<sup>9</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>6</sub>)alkylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a



- (C<sub>2</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>3</sub>-C<sub>5</sub>)alkynylene group, and R<sup>14</sup> is a hydrogen atom; a halogen atom; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents
- 10 selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups,
- 15 (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyloxy group; a substituted phenyloxy group having one or more
- 20 same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups,
- 25 halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and

(C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenylthio group; a  
 substituted phenylthio group having one or more same or  
 different substituents selected from halogen atoms,  
 cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-  
 5 C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy  
 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio  
 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-  
 alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups,  
 halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino  
 10 groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl  
 groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-  
 alkoxycarbonyl groups; a heterocyclic group; or a  
 substituted heterocyclic group having one or more same  
 or different substituents selected from halogen atoms,  
 15 cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-  
 C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy  
 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio  
 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-  
 alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups,  
 20 halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino  
 groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl  
 groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-  
 alkoxycarbonyl groups))];

the two Xs bonding to the adjacent two carbon  
 25 atoms constituting the aromatic ring containing Q<sup>1</sup> to Q<sup>4</sup>  
 may bond to each other to form a condensed ring; the  
 condensed ring may have one or more same or different  
 substituents selected from halogen atoms, cyano group,

- nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups;
- 10                   Q<sup>5</sup> is a nitrogen atom or a carbon atom;  
                     Y may be the same or different, and is a halogen atom; a cyano group; a nitro group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl group; a substituted phenyl group having one or more same or different
- 15 substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl
- 20 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted
- 25 heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups,

(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, 5 di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>5</sup>-R<sup>10</sup> (A<sup>5</sup> and R<sup>10</sup> each have the same definition as given above);

the two Ys bonding to the adjacent two carbon 10 atoms constituting the aromatic ring containing Q<sup>5</sup> may bond to each other to form a condensed ring; the condensed ring may have one or more same or different substituents selected from halogen atoms, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, 15 halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, phenyl group, substituted phenyl groups having one or more same or 20 different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)- 25 alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-

alkoxycarbonyl groups, heterocyclic groups, and substituted heterocyclic groups having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups;

m is an integer of 0 to 5;

Z<sup>1</sup> and Z<sup>2</sup> may be the same or different and are each an oxygen atom or a sulfur atom}.

#### MODE FOR CARRYING OUT THE INVENTION

In the definition of the aromatic diamide derivative represented by the general formula (I) or the salt thereof according to the present invention, "halogen atom" refers to chlorine atom, bromine atom, iodine atom or fluorine atom; "(C<sub>1</sub>-C<sub>6</sub>)alkyl group" refers to a straight chain or branched chain alkyl group having 1 to 6 carbon atoms, such as methyl, ethyl, n-propyl, isopropyl, n-butyl, isobutyl, sec-butyl, tert-butyl, n-pentyl, n-hexyl or the like; "halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group" refers to a straight chain or branched chain alkyl group having 1 to 6 carbon atoms,

substituted with one or more same or different halogen atoms; "(C<sub>1</sub>-C<sub>8</sub>)alkylene group" refers to a straight chain or branched chain alkylene group having 1 to 8 carbon atoms, such as methylene, ethylene, propylene, trimethylene, dimethylmethylene, tetramethylene, isobutylene, dimethylethylene, octamethylene or the like.

"(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group" refers to an alicyclic alkyl group having 3 to 6 carbon atoms, such as cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl or the like.

"The 4- to 7-membered ring which may contain one or two same or different atoms selected from oxygen, sulfur and nitrogen atoms, which is formed by bonding of R<sup>1</sup> to A<sup>1</sup> or by bonding of R<sup>2</sup> to A<sup>1</sup>" can be exemplified by cyclobutane ring, cyclopentane ring, cyclohexane ring, azetidine ring, pyrrolidine ring, pyrroline ring, piperidine ring, imidazolidine ring, imidazoline ring, oxazolidine ring, thiazolidine ring, isoxazolidine ring, isothiazolidine ring, tetrahydropyridine ring, piperazine ring, morpholine ring, thiomorpholine ring, dioxazine ring and dithiazine ring. "The 4- to 7-membered ring which may contain one or two same or different atoms selected from oxygen, sulfur and nitrogen atoms, which is formed by bonding of R<sup>2</sup> to R<sup>1</sup>" can be exemplified by azetidine ring, pyrrolidine ring, pyrroline ring, piperidine ring, imidazolidine ring, imidazoline ring, oxazolidine ring,

thiazolidine ring, isoxazolidine ring, isothiazolidine ring, tetrahydropyridine ring, piperazine ring, morpholine ring, thiomorpholine ring, dioxazine ring and dithiazine ring.

5                "Heterocyclic ring" can be exemplified by pyridyl group, pyridine-N-oxide group, pyrimidyl group, furyl group, tetrahydrofuryl group, thienyl group, tetrahydrothienyl group, tetrahydropyranyl group, tetrahydrothiopyranyl group, oxazolyl group, isoxazolyl group, oxadiazolyl group, thiazolyl group, isothiazolyl group, thiadiazolyl group, imidazolyl group, triazolyl group and pyrazolyl group. "Condensed ring" can be exemplified by naphthalene, tetrahydronaphthalene, indene, indane, quinoline, quinazoline, indole, 15 indoline, coumarone, isocoumarone, benzodioxane, benzodioxole, benzofuran, dihydrobenzofuran, benzothiophene, dihydrobenzothiophene, benzoxazole, benzothiazole, benzimidazole and indazole.

              "Salt" can be exemplified by inorganic acid 20 salts such as hydrochloride, sulfate, nitrate, phosphate and the like; organic acid salts such as acetate, fumarate, maleate, oxalate, methanesulfonate, benzenesulfonate, paratoluenesulfonate and the like; and salts with metal ions such as sodium ion, potassium 25 ion, calcium ion and the like.

The aromatic diamide derivative represented by the general formula (I) or the salt thereof according to the present invention may contain, in the

structural formula, one or more asymmetric carbon atoms or asymmetric centers, and may contain two or more kinds of optical isomers or diastereomers; and the present aromatic diamide derivative or salt thereof  
 5 includes even these individual optical isomers and mixtures of any proportions of the optical isomers. Also, the aromatic diamide derivative represented by the general formula (I) or the salt thereof according to the present invention may contain, in the structural  
 10 formula, two kinds of geometrical isomers owing to the carbon-to-carbon double bond or carbon-to-nitrogen double bond; and the present aromatic diamide derivative or salt thereof includes even these individual geometrical isomers and mixtures of any  
 15 proportions of the geometrical isomers.

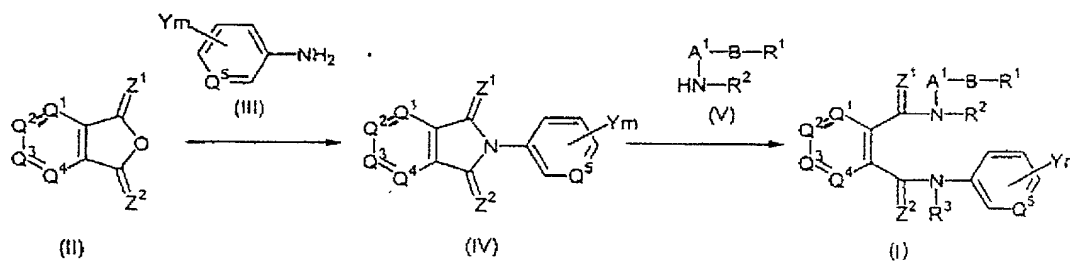
In a preferred embodiment of the aromatic diamide derivative represented by the general formula (I) or the salt thereof according to the present invention,  $A^1$  is a  $(C_1-C_4)$ alkylene group, a  $(C_3-C_5)$ -  
 20 alkenylene group or a  $(C_3-C_5)$ alkynylene group; B is  $-CO-$  or  $-C(=N-OR^4)-$  ( $R^4$  is a hydrogen atom or a  $(C_1-C_3)$ alkyl group);  $R^1$  is a  $(C_1-C_3)$ alkyl group, a  $(C_1-C_3)$ alkoxy group, a mono $(C_1-C_3)$ alkylamino group or a di $(C_1-C_3)$ alkylamino group wherein the two alkyl groups may be  
 25 the same or different;  $R^2$  and  $R^3$  are each a hydrogen atom;  $Q^1$  and  $Q^2$  are each a carbon atom; X may be the same or different, and is a halogen atom, a nitro group, a halo $(C_1-C_6)$ alkyl group or a halo $(C_1-C_6)$ alkoxy



group;  $Q^3$  and  $Q^4$  are each a carbon atom;  $Q^5$  is a nitrogen atom or a carbon atom; Y may be the same or different, and is a halogen atom, a  $(C_1-C_6)$ alkyl group, a halo $(C_1-C_6)$ alkyl group, a  $(C_1-C_6)$ alkoxy group, a halo $(C_1-C_6)$ -alkoxy group or a halo $(C_1-C_6)$ alkoxyhalo $(C_1-C_6)$ alkoxy group; m is an integer of 1 to 3; and  $Z^1$  and  $Z^2$  are each an oxygen atom.

The aromatic diamide derivative represented by the general formula (I) or the salt thereof according to the present invention can be produced, for example, by the processes shown in the following schemes. The present aromatic diamide derivative or salt thereof can also be produced, for example, by the process disclosed in Japanese Patent Application No. 10-350768. However, the processes for producing the present aromatic diamide derivative or salt thereof are not restricted to these processes.

#### Production process 1



(wherein  $R^1, R^2, A^1, B, Q^1$  to  $Q^5, Y, m, Z^1$  and  $Z^2$  each have the same definition as given above).

A carboxylic anhydride derivative represented by the general formula (II) is reacted with an amine represented by the general formula (III) in the presence of an inert solvent to obtain an imide derivative represented by the general formula (IV); the imide derivative (IV) is reacted, after being isolated or without being isolated, with an amine represented by the general formula (V); thereby, an aromatic diamide derivative represented by the general formula (I) can be produced.

(1) General formula (II)  $\rightarrow$  general formula (IV)

The inert solvent usable in the present reaction can be any solvent as long as it does not impair the progress of the present reaction. It can be exemplified by aromatic hydrocarbons such as benzene, toluene, xylene and the like; halogenated hydrocarbons such as methylene chloride, chloroform, carbon tetrachloride and the like; chlorinated aromatic hydrocarbons such as chlorobenzene, dichlorobenzene and the like; chain or cyclic ethers such as diethyl ether, dioxane, tetrahydrofuran and the like; esters such as ethyl acetate and the like; amides such as dimethylformamide, dimethylacetamide and the like; acids such as acetic acid and the like; dimethyl sulfoxide; and 1,3-dimethyl-2-imidazolidinone. These inert solvents can be used singly or in admixture of two or more kinds.

Since the present reaction is an equimolar

reaction, the individual reactants can be used by the same mole, but any reactant may be used in excess. The present reaction may be conducted under a dehydrating condition as necessary.

5           The reaction temperature can be room temperature to the refluxing temperature of the inert solvent used. The reaction time varies depending upon, for example, the size or temperature of reaction, but can appropriately be determined in a range of several  
10 minutes to 48 hours.

          After the completion of the reaction, the reaction mixture containing an intended product is subjected to an isolation treatment according to an ordinary method and, as necessary, purification is  
15 conducted by recrystallization, column chromatography or the like, whereby the intended product can be obtained. The reaction mixture per se may be used in the next reaction without being subjected to the above isolation treatment for obtaining the intended product.

20           The carboxylic anhydride derivative represented by the general formula (II) can be produced by one of the processes described in J. Org. Chem., 52, 129 (1987); J. Am. Chem. Soc., 51, 1865 (1929); ibidem, 63, 1542 (1941); etc. The amine represented by the  
25 general formula (III) can be produced by one of the processes described in J. Org. Chem., 29, 1 (1964); Angew. Chem. Int. Ed. Engl., 24, 871 (1985); Synthesis, 1984, 667; Nippon Kagaku Kaishi, 1973, 2351; DE-

2606982; JP-A-1-90163; etc. The amine represented by the general formula (V) can be produced by one of the processes described in Chem. Pharm. Bull., 30(5), 1921-1924 (1982); Jikken Kagaku Koza 22, Organic Synthesis IV (Amino Acids and Peptides) (1992); etc.

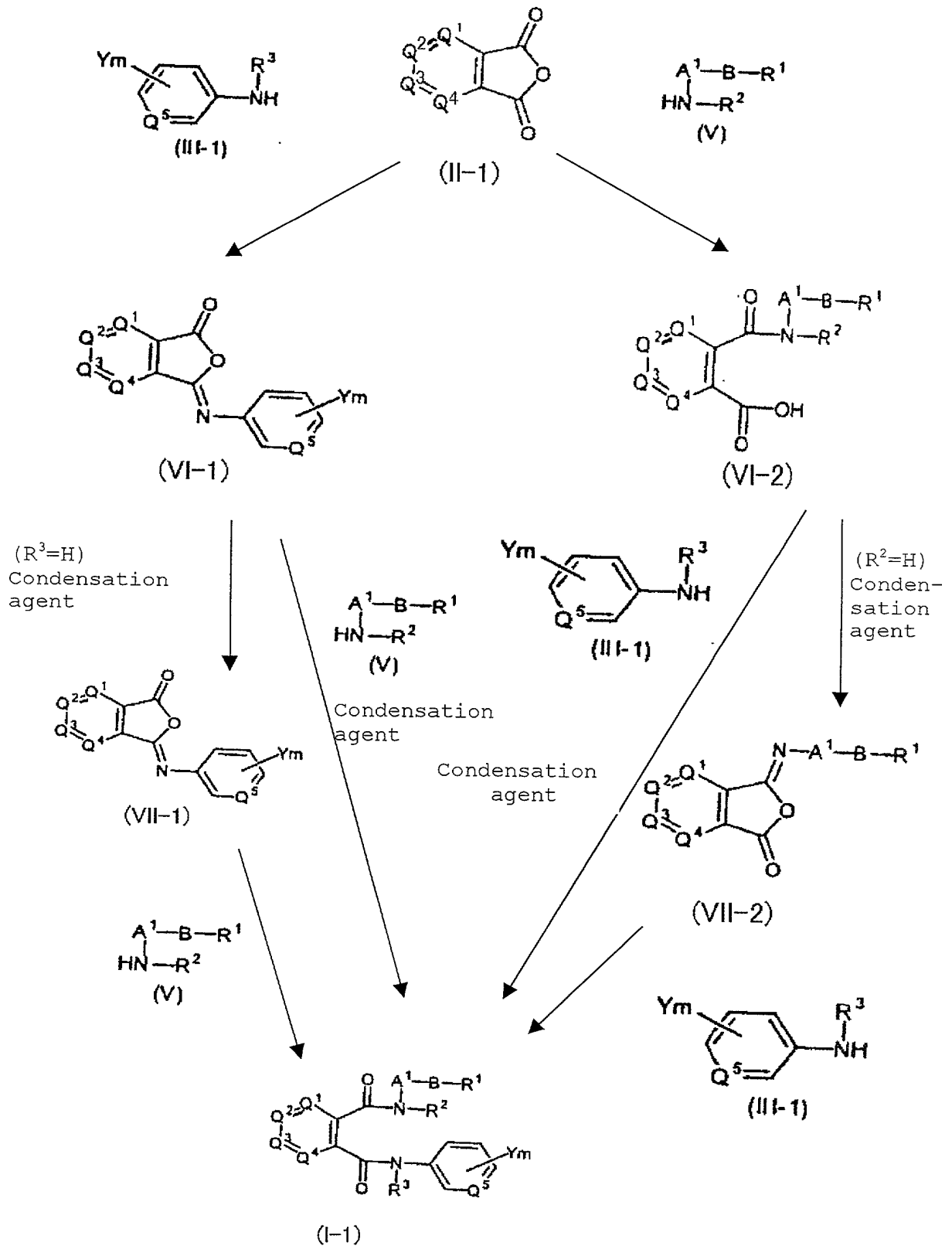
(2) General formula (IV)  $\rightarrow$  general formula (I)

The inert solvent usable in the present reaction can be exemplified by those inert solvents usable in the above reaction (1).

10            Since the present reaction is an equimolar reaction, the individual reactants can be used by the same mole, but the amine represented by the general formula (V) may be used in excess.

            The reaction temperature can be room  
15    temperature to the refluxing temperature of the inert solvent used. The reaction time varies depending upon, for example, the size or temperature of reaction, but can appropriately be determined in a range of several minutes to 48 hours.

20            After the completion of the reaction, the reaction mixture containing an intended product is subjected to an isolation treatment according to an ordinary method and, as necessary, purification is conducted by recrystallization, column chromatography  
25    or the like, whereby the intended product can be obtained.

Production process 2

(wherein  $R^1$ ,  $R^2$ ,  $R^3$ ,  $A^1$ ,  $B$ ,  $Q^1$  to  $Q^5$ ,  $Y$  and  $m$  each have the same definition as given above).

A carboxylic anhydride derivative represented by the general formula (II-1) is reacted with an amine represented by the general formula (V) in the presence of an inert solvent to obtain a carboxamide represented by the general formula (VI-2). This carboxamide (VI-2) is subjected to the following procedure after being isolated or without being isolated. That is, the carboxamide (VI-2), wherein  $R^2$  is a hydrogen atom, is subjected to a condensation reaction in the presence of a condensation agent to obtain a compound represented by the general formula (VII-2); the compound (VII-2) is reacted, after being isolated or without being isolated, with an amine represented by the general formula (III-1) in the presence of an inert solvent; or, the carboxamide (VI-2), wherein  $R^2$  is other than hydrogen atom, is condensed with an amine represented by the general formula (III-1) in the presence of a condensation agent; thereby, an aromatic diamide derivative represented by the general formula (I-1) can be produced.

Alternatively, a carboxylic anhydride derivative represented by the general formula (II-1) is reacted with an amine represented by the general formula (III-1) in the presence of an inert solvent to obtain a carboxamide represented by the general formula (VI-1). This carboxamide (VI-1) is subjected to the

following procedure after being isolated or without being isolated. That is, the carboxamide (VI-1), wherein  $R^3$  is a hydrogen atom, is subjected to a condensation reaction in the presence of a condensation agent to obtain a compound represented by the general formula (VII-1) and this compound (VII-1) is reacted, after being isolated or without being isolated, with an amine represented by the general formula (V) in the presence of an inert solvent; or, the carboxamide (VI-1), wherein  $R^3$  is other than hydrogen atom, is condensed with an amine represented by the general formula (V) in the presence of a condensation agent; thereby, an aromatic diamide derivative represented by the general formula (I-1) can be produced.

- 15 (1) General formula (II-1)  $\rightarrow$  general formula (VI-1), or  
 general formula (II-1)  $\rightarrow$  general formula (VI-2)

The present reaction is conducted in the same manner as in the production process 1 (2), whereby an intended compound can be produced.

- 20 (2) General formula (VII-1) or general formula (VII-2)  
 $\rightarrow$  general formula (I-1)

The present reaction is conducted in the same manner as in the production process 1 (2), whereby an intended product can be produced.

- 25 (3) General formula (VI-1)  $\rightarrow$  general formula (VII-1),  
 or general formula (VI-2)  $\rightarrow$  general formula (VII-2)

The present reaction is conducted in the same manner as described in J. Med. Chem., 10, 982 (1967),

whereby an intended compound can be produced.

(4) General formula (VI-1) or general formula (VI-2) →  
general formula (I-1)

A carboxamide derivative represented by the  
5 general formula (VI-1) or the general formula (VI-2) is  
reacted with an amine represented by the general  
formula (V) or the general formula (III-1) in the  
presence of a condensation agent and an inert solvent,  
whereby an intended compound can be produced. The  
10 present invention may be conducted in the presence of a  
base, as necessary.

The inert solvent used in the present  
reaction can be exemplified by tetrahydrofuran, diethyl  
ether, dioxane, methylene chloride and chloroform.

15 The condensation agent used in the present  
reaction can be any condensation agent used in ordinary  
amide production, and can be exemplified by Mukaiyama  
reagent (2-chloro-N-methyl pyridinium iodide), DCC (1,3-  
dicyclohexylcarbodiimide), CDI (carbonyl diimidazole)  
20 and DEPC (diethyl phosphoric cyanide). The amount of  
the condensation agent used can appropriately be  
determined at one or more moles per mole of the  
carboxamide represented by the general formula (VI-1)  
or the general formula (VI-2).

25 The base usable in the present reaction can  
be exemplified by organic bases (e.g. triethylamine and  
pyridine) and inorganic bases (e.g. potassium  
carbonate). The amount of the base used can



appropriately be determined at one or more moles per mole of the carboxamide represented by the general formula (VI-1) or the general formula (VI-2).

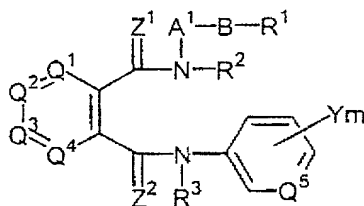
The reaction temperature can be 0°C to the boiling point of the inert solvent used. The reaction time varies depending upon, for example, the size or temperature of reaction, but is several minutes to 48 hours.

After the completion of the reaction, the reaction mixture containing an intended product is subjected to an isolation treatment according to an ordinary method and, as necessary, purification is conducted by recrystallization, column chromatography or the like, whereby the intended product can be obtained.

Representative compounds of the aromatic diamide derivative represented by the general formula (I) are shown below in Table 1, Table 2 and Table 3. However, the present aromatic diamide derivative is not restricted to these compounds. In the following tables, Me refers to methyl group; Et refers to ethyl group; Pr refers to propyl group; Bu refers to butyl group; Ph refers to phenyl group; Pyr refers to pyridyl group; c- refers to alicyclic hydrocarbon group; and Physical property refers to melting point (°C).

In Table 1, with respect to Q<sup>1</sup> to Q<sup>4</sup> which are each C-X, Q<sup>1</sup> is at 3-position; Q<sup>2</sup> is at 4-position; Q<sup>3</sup> is at 5-position; and Q<sup>4</sup> is at 6-position.

General formula (I)

Table 1 ( $Q^1=Q^2=Q^3=Q^4=C-X$ ,  $Q^5=C$ ,  $Z^1=Z^2=O$ ,  $R^3=H$ )

No.	$-A^1-B-R^1$	$R^2$	X	Ym	Physical property
1	$CH_2CO_2Et$	H	3-F	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	120
2	$CH_2CO_2Et$	H	3-Cl	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	103
3	$CH_2CO_2Et$	H	3-Br	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	134
4	$CH_2CO_2Et$	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	120
5	$CH(Me)CO_2Et$	H	3-F	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	140
6	$CH(Me)CO_2Et$	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	145
7	$CH(Me)CH_2CO_2Et$	H	3-F	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	88
8	$CH_2CH_2CO_2Et$	H	3-I	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	112
9	$CH_2CH_2CO_2Et$	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	133
10	$CH_2CH_2CO_2Et$	H	6-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	164
11	$CH(Me)CH_2CO_2Et$	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	paste

Table 1 (cont'd)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	R <sup>2</sup>	X	Y <sub>m</sub>	Physical property
12	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Me	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
13	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Pr-i	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
14	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Bu-t	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
15	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	4-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
16	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-CF <sub>3</sub>	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	
17	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-OCF <sub>3</sub>	2-Cl-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
18	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Et-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
19	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-CH=C(Cl)CF <sub>3</sub>	
20	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-CH=CBr <sub>2</sub>	
21	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	4-CO <sub>2</sub> CH(CF <sub>3</sub> ) <sub>2</sub>	
22	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-C≡C- (2,4-Cl <sub>2</sub> -Ph)	
23	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-C≡C-Bu-t	
24	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-CF <sub>3</sub>	2-F-4-CF <sub>2</sub> CF <sub>3</sub>	
25	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-OMe-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
26	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-C(CH <sub>3</sub> )=NOMe	
27	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-C(CH <sub>3</sub> )=NO- CH <sub>2</sub> -Ph	
28	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	3-OCF <sub>2</sub> CF <sub>2</sub> O-4	
29	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	3-OCF <sub>2</sub> CF <sub>2</sub> -4	
30	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Cl-3-OCF <sub>2</sub> CF <sub>2</sub> O-4	
31	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	3-OCF <sub>2</sub> O-4	
32	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	3-OCHF <sub>2</sub> CF <sub>2</sub> O-4	

Table 1 (cont'd)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	R <sup>2</sup>	X	Y <sub>m</sub>	Physical property
33	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	3-OCF <sub>3</sub> CHFO-4	
34	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-3-F-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
35	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-5-F-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
36	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-(4-CF <sub>3</sub> -Ph)	
37	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-(4-Cl-Ph)	
38	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-(4-Cl-PhO)	
39	CH(Me)CO <sub>2</sub> Et	H	3-I	2-Me-4-OCF <sub>3</sub>	
40	CH(Me)CO <sub>2</sub> Et	H	3-I	2-Me-4-OCF <sub>2</sub> CF <sub>3</sub>	
41	CH(Me)CO <sub>2</sub> Et	H	3-I	2-Me-4-CF <sub>3</sub>	
42	CH(Me)CO <sub>2</sub> Et	H	3-I	2-Me-3-CF <sub>2</sub> CF <sub>3</sub>	
43	CH(Me)CO <sub>2</sub> Et	H	3-I	2-Me-4-SCF <sub>3</sub>	
44	CH(Me)CO <sub>2</sub> Et	H	3-I	2-Me-4-SOCF <sub>3</sub>	
45	CH(Me)CO <sub>2</sub> Et	H	3-I	2-Me-4-SO <sub>2</sub> CF <sub>3</sub>	
46	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-SCF <sub>2</sub> CF <sub>3</sub>	
47	CH(Me)CO <sub>2</sub> Et	H	3-I	2-Me-4-OCF <sub>2</sub> CHFOCF <sub>3</sub>	
48	CH(Me)CO <sub>2</sub> Et	H	3-I	2-Me-4-(5-CF <sub>3</sub> -2-Pyr-O)	
49	CH(Me)CO <sub>2</sub> Et	H	3-Cl	2-Me-4-(3-Cl-5-CF <sub>3</sub> -2-Pyr-O)	
50	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-NO <sub>2</sub>	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
51	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3,4-Cl <sub>2</sub>	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
52	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-SCF <sub>3</sub>	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
53	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-SOCF <sub>3</sub>	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
54	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-SO <sub>2</sub> CF <sub>3</sub>	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	

Table 1 (cont'd)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	R <sup>2</sup>	X	Ym	Physical property
55	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-Ph	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
56	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-OPh	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
57	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-(4-Cl-PhO)	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
58	CH(Me)CO <sub>2</sub> Et	H	3-I	2-Me-4-Cl	
59	CH(Me)CO <sub>2</sub> Et	H	3-	2-Me-4-Cl	
60	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	H	CONHPr-i 3-CH=CH- CH=CH-4	2-Me-4-Cl	
61	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	Me	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
62	CH(Me)CH <sub>2</sub> CO <sub>2</sub> Et	Et	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
63	C(Me) <sub>2</sub> C≡CCO <sub>2</sub> Et	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
64	C(Me) <sub>2</sub> CH=CHCO <sub>2</sub> Et	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	250
65	CH(CH <sub>2</sub> SMe)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
66	CH(CF <sub>3</sub> )CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
67	CH(CH <sub>2</sub> OMe)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
68	CH(Ph)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
69	CH(4-Cl-Ph)CH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
70	CH(Me)CON(Me) <sub>2</sub>	H	3-I	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	122
71	CH(Me)CON(Me) <sub>2</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	156
72	CH(Me)CON(Et) <sub>2</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	133
73	CH(Me)CH <sub>2</sub> CONHMe	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	220
74	CH(Me)CH <sub>2</sub> CONHEt	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	208
75	CH(Me)CH <sub>2</sub> CON(Me)Ph	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	200
76	CH(Me)CH <sub>2</sub> CON(Me) <sub>2</sub>	H	3-I	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	102
77	CH(Me)CH <sub>2</sub> CON(Me) <sub>2</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	126

Table 1 (cont'd)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	R <sup>2</sup>	X	Y <sub>m</sub>	Physical property
78	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	137
79	CH(Me)CH <sub>2</sub> CONHEt	H	4-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
80	CH(Me)CH <sub>2</sub> CONHEt	H	3-CF <sub>3</sub>	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	
81	CH(Me)CH <sub>2</sub> CONHEt	H	3-OCF <sub>3</sub>	2-Cl-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
82	CH(Me)CH <sub>2</sub> CONHEt	H	3-I	2-Et-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
83	CH(Me)CH <sub>2</sub> CONHEt	H	3-I	2-Me-4-CH= C(Cl)CF <sub>3</sub>	
84	CH(Me)CH <sub>2</sub> CONHEt	H	3-I	2-Me-4-CH=CBr <sub>2</sub>	
85	CH(Me)CON(Et) <sub>2</sub>	H	3-I	4-CO <sub>2</sub> CH(CF <sub>3</sub> ) <sub>2</sub>	
86	CH(Me)CON(Et) <sub>2</sub>	H	3-I	2-Me-4-C≡C- (2,4-Cl <sub>2</sub> -Ph)	
87	CH(Me)CH <sub>2</sub> CONHEt	H	3-I	2-Me-4-C≡C-Bu-t	
88	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-CF <sub>3</sub>	2-F-4-CF <sub>2</sub> CF <sub>3</sub>	
89	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-I	2-OMe-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
90	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-I	2-Me-4-C(CH <sub>3</sub> )= NOMe	
91	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-I	2-Me-4-C(CH <sub>3</sub> )= NO-CH <sub>2</sub> -Ph	
92	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-I	3-OCF <sub>2</sub> CF <sub>2</sub> O-4	
93	CH(Me)CH <sub>2</sub> CONHEt	H	3-I	3-OCF <sub>2</sub> CF <sub>2</sub> -4	
94	CH(Me)CON(Et) <sub>2</sub>	H	3-I	2-Cl-3-OCF <sub>2</sub> CF <sub>2</sub> O-4	
95	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-I	3-OCF <sub>2</sub> O-4	
96	CH(Me)CH <sub>2</sub> CONHEt	H	3-I	3-OCHF <sub>2</sub> CF <sub>2</sub> O-4	
97	CH(Me)CON(Et) <sub>2</sub>	H	3-I	3-OCF <sub>2</sub> CHFO-4	
98	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-I	2-Me-3-F- 4-CF(CF <sub>3</sub> ) <sub>2</sub>	

Table 1 (cont'd)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	R <sup>2</sup>	X	Ym	Physical property
99	CH(Me)CH <sub>2</sub> CONHEt	H	3-I	2-Me-5-F-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
100	CH(Me)CON(Et) <sub>2</sub>	H	3-I	2-Me-4-(4-CF <sub>3</sub> -Ph)	
101	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-I	2-Me-4-(4-Cl-Ph)	
102	CH(Me)CH <sub>2</sub> CONHEt	H	3-I	2-Me-4-(4-Cl-PhO)	
103	CH(Me)CON(Et) <sub>2</sub>	H	3-I	2-Me-4-OCF <sub>3</sub>	
104	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-I	2-Me-4-OCF <sub>2</sub> CF <sub>3</sub>	
105	CH(Me)CH <sub>2</sub> CONHEt	H	3-I	2-Me-4-CF <sub>3</sub>	
106	CH(Me)CH <sub>2</sub> CONHEt	H	3-I	2-Me-3-CF <sub>2</sub> CF <sub>3</sub>	
107	CH(Me)CON(Et) <sub>2</sub>	H	3-I	2-Me-4-SCF <sub>3</sub>	
108	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-I	2-Me-4-SOCF <sub>3</sub>	
109	CH(Me)CH <sub>2</sub> CONHEt	H	3-I	2-Me-4-SO <sub>2</sub> CF <sub>3</sub>	
110	CH(Me)CH <sub>2</sub> CONHEt	H	3-I	2-Me-4-SCF <sub>2</sub> CF <sub>3</sub>	
111	CH(Me)CON(Et) <sub>2</sub>	H	3-I	2-Me-4-OCF <sub>2</sub> CHFOCF <sub>3</sub>	
112	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-I	2-Me-4-(5-CF <sub>3</sub> -2-Pyr-O)	
113	CH(Me)CH <sub>2</sub> CONHEt	H	3-Cl	2-Me-4-(3-Cl-5-CF <sub>3</sub> -2-Pyr-O)	
114	CH(Me)CH <sub>2</sub> CONHEt	H	3-NO <sub>2</sub>	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
115	CH(Me)CON(Et) <sub>2</sub>	H	3,4-Cl <sub>2</sub>	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
116	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-SCF <sub>3</sub>	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
117	CH(Me)CH <sub>2</sub> CONHEt	H	3-SOCF <sub>3</sub>	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
118	CH(Me)CH <sub>2</sub> CONHEt	H	3-SO <sub>2</sub> CF <sub>3</sub>	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
119	CH(Me)CON(Et) <sub>2</sub>	H	3-Ph	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
120	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-OPh	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	

Table 1 (cont'd)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	R <sup>2</sup>	X	Ym	Physical property
121	CH(Me)CH <sub>2</sub> CONHEt	H	3-(4-Cl-PhO)	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
122	CH(Me)CON(Et) <sub>2</sub>	H	3-I	2-Me-4-Cl	
123	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-CONHPr-i	2-Me-4-Cl	
124	CH(Me)CH <sub>2</sub> CONHEt	H	3-CH=CH-CH=CH-4	2-Me-4-Cl	
125	CH(Me)CON(Et) <sub>2</sub>	Me	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
126	CH(Me)CH <sub>2</sub> CON(Et) <sub>2</sub>	Et	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
127	C(Me) <sub>2</sub> C≡CCON(Et) <sub>2</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
128	C(Me) <sub>2</sub> CH=CHCON(Et) <sub>2</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
129	CH(CH <sub>2</sub> SMe)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
130	CH(CF <sub>3</sub> )CH <sub>2</sub> CONHEt	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
131	CH(CH <sub>2</sub> OMe)-CH <sub>2</sub> CONHEt	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
132	CH(Ph)CH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
133	CH(4-Cl-Ph)-CH <sub>2</sub> CONHEt	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
134	CH(Me)COMe	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	189
135	CH(Me)COPh	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	171
136	CH(Me)CH=NOMe	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	192
137	CH(Me)CH=NOMe	H	6-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	paste
138	CH(Me)CH=NOCH <sub>2</sub> Ph	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	paste
139	C(Me) <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	126
140	CH(Me)C(Me)=NOMe	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	107
141	CH <sub>2</sub> C(Ph)=NOMe	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	106
142	CH(Me)CH=NOMe	H	4-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
143	CH(Me)C(Me)=NOMe	H	3-CF <sub>3</sub>	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	



Table 1 (cont'd)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	R <sup>2</sup>	X	Ym	Physical property
144	CH (Me) CH=NOMe	H	3-OCF <sub>3</sub>	2-Cl-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
145	C (Me) <sub>2</sub> CH=NOMe	H	3-I	2-Et-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
146	CH (Me) CH=NOMe	H	3-I	2-Me-4-CH=C (Cl) CF <sub>3</sub>	
147	CH (Me) C (Me) =NOMe	H	3-I	2-Me-4-CH=CBr <sub>2</sub>	
148	CH (Me) CH=NOMe	H	3-I	4-CO <sub>2</sub> CH (CF <sub>3</sub> ) <sub>2</sub>	
149	C (Me) <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-C≡C- (2,4-Cl <sub>2</sub> -Ph)	
150	CH (Me) CH=NOMe	H	3-I	2-Me-4-C≡C-Bu-t	
151	CH <sub>2</sub> C (Me) =NOMe	H	3-CF <sub>3</sub>	2-F-4-CF <sub>2</sub> CF <sub>3</sub>	
152	CH (Me) CH=NOMe	H	3-I	2-OMe-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
153	C (Me) <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-C (CH <sub>3</sub> ) =NOMe	
154	CH (Me) CH=NOMe	H	3-I	2-Me-4-C (CH <sub>3</sub> ) =NO- CH <sub>2</sub> -Ph	
155	CH (Me) C (Me) =NOMe	H	3-I	3-OCF <sub>2</sub> CF <sub>2</sub> O-4	
156	CH (Me) CH=NOMe	H	3-I	3-OCF <sub>2</sub> CF <sub>2</sub> -4	
157	C (Me) <sub>2</sub> CH=NOMe	H	3-I	2-Cl-3-OCF <sub>2</sub> CF <sub>2</sub> O-4	
158	CH (Me) C (Me) =NOMe	H	3-I	3-OCF <sub>2</sub> O-4	
159	CH (Me) CH=NOMe	H	3-I	3-OCHF <sub>2</sub> CF <sub>2</sub> O-4	
160	C (Me) <sub>2</sub> CH=NOMe	H	3-I	3-OCF <sub>2</sub> CHFO-4	
161	CH (Me) CH=NOMe	H	3-I	2-Me-3-F-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
162	CH (Me) C (Me) =NOMe	H	3-I	2-Me-5-F-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
163	CH (Me) CH=NOMe	H	3-I	2-Me-4-(4-CF <sub>3</sub> -Ph)	
164	C (Me) <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-(4-Cl-Ph)	

Table 1 (cont'd)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	R <sup>2</sup>	X	Y <sub>m</sub>	Physical property
165	CH (Me) CH=NOMe	H	3-I	2-Me-4- (4-Cl-PhO)	
166	CH (Me) C (Me) =NOMe	H	3-I	2-Me-4-OCF <sub>3</sub>	
167	CH (Me) CH=NOMe	H	3-I	2-Me-4-OCF <sub>2</sub> CF <sub>3</sub>	
168	C (Me) <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-CF <sub>3</sub>	
169	CH (Me) CH=NOMe	H	3-I	2-Me-3-CF <sub>2</sub> CF <sub>3</sub>	
170	CH (Me) C (Me) =NOMe	H	3-I	2-Me-4-SCF <sub>3</sub>	
171	CH (Me) CH=NOMe	H	3-I	2-Me-4-SOCF <sub>3</sub>	
172	C (Me) <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-SO <sub>2</sub> CF <sub>3</sub>	
173	CH (Me) CH=NOMe	H	3-I	2-Me-4-SCF <sub>2</sub> CF <sub>3</sub>	
174	CH (Me) CH=NOMe	H	3-I	2-Me-4-OCF <sub>2</sub> CHFOCF <sub>3</sub>	
175	C (Me) <sub>2</sub> CH=NOMe	H	3-I	2-Me-4- (5-CF <sub>3</sub> -2-Pyr-O)	
176	CH (Me) CH=NOMe	H	3-Cl	2-Me-4- (3-Cl-5-CF <sub>3</sub> -2-Pyr-O)	
177	C (Me) <sub>2</sub> CH=NOMe	H	3-NO <sub>2</sub>	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	149
178	CH (Me) CH=NOMe	H	3,4-Cl <sub>2</sub>	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
179	CH (Me) CH=NOMe	H	3-SCF <sub>3</sub>	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
180	C (Me) <sub>2</sub> CH=NOMe	H	3-SOCF <sub>3</sub>	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
181	CH (Me) CH=NOMe	H	3-SO <sub>2</sub> CF <sub>3</sub>	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
182	C (Me) <sub>2</sub> CH=NOMe	H	3-Ph	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
183	CH (Me) CH=NOMe	H	3-OPh	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
184	CH (Me) CH=NOMe	H	3- (4-Cl-PhO)	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
185	C (Me) <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-Cl	
186	CH (Me) CH=NOMe	H	3-CONHPr-i	2-Me-4-Cl	

Table 1 (cont'd)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	R <sup>2</sup>	X	Y <sub>m</sub>	Physical property
187	CH (Me) CH=NOMe	H	3-CH=CH- CH=CH-4	2-Me-4-Cl	
188	CH (Me) CH=NOMe	Me	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
189	CH (Me) CH=NOMe	Et	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
190	CH (CH <sub>2</sub> SMe) CH=NOMe	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
191	CH (CF <sub>3</sub> ) CH=NOEt	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
192	CH (CH <sub>2</sub> OMe) CH=NOMe	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
193	CH (Ph) CH=NOMe	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
194	CH (Me) CH <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
195	CH (Me) CH=NOCH <sub>2</sub> - (4-t-Bu-Ph)	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
196	CH (Me) CH=NOCH <sub>2</sub> - (4-t-BuO <sub>2</sub> C-Ph)	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
197	CH (Me) CO <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> OEt	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
198	CH (Me) CO <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> SEt	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
199	CH (Me) CO <sub>2</sub> CH <sub>2</sub> -Ph	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
200	CH <sub>2</sub> CH=CHCO <sub>2</sub> Et	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
201	CH <sub>2</sub> C≡CCO <sub>2</sub> Et	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
202	CH (Me) CH=CHCO <sub>2</sub> Et	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
203	CH (Me) C≡CCO <sub>2</sub> Et	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
204	CH (Me) CONHEt	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	210
205	CH (Me) CONHPr-n	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	201
206	CH (Me) CONHPr-c	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	
207	CH (Me) CONHBu-n	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	214

Table 1 (cont'd)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	R <sup>2</sup>	X	Y <sub>m</sub>	Physical property
208	CH (Me) CONHCH <sub>2</sub> CH=CH <sub>2</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
209	CH (Me) CONHCH <sub>2</sub> C≡CH	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
210	CH (Me) CONHCH <sub>2</sub> CF <sub>3</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
211	CH (Me) CONHCH <sub>2</sub> CH <sub>2</sub> SMe	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
212	CH (Me) CONHCH <sub>2</sub> CH <sub>2</sub> SOMe	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
213	CH (Me) CONHCH <sub>2</sub> CH <sub>2</sub> -SO <sub>2</sub> Me	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
214	CH (Me) CONHCH <sub>2</sub> CH <sub>2</sub> OMe	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
215	CH (Me) CONHCH <sub>2</sub> -Ph	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	212
216	CH (Me) CON (n-Pr) <sub>2</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	142
217	CH (Me) CON (CH <sub>2</sub> CH <sub>2</sub> ) <sub>2</sub> O	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	165
218	CH (Me) CON (CH <sub>2</sub> ) <sub>5</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	170
219	CH (Me) CON (CH <sub>2</sub> ) <sub>4</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	205
220	C (Me) <sub>2</sub> CONHEt	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
221	C (Me) <sub>2</sub> CONHPr-n	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
222	CH (Me) CONHCH <sub>2</sub> CH=CH <sub>2</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
223	CH (Me) CONHCH <sub>2</sub> C≡CH	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
224	CH (Me) CH=CHCONHMe	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
225	CH (Me) C≡CCONHEt	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
226	C (Me) <sub>2</sub> CH=CHCONHEt	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	245
227	C (Me) <sub>2</sub> C≡CCONHEt	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
228	CH (Me) C(=O)H	H	H	2-Me-4-OCF <sub>3</sub>	134
229	C (Me) <sub>2</sub> C(=O)H	H	H	2-Me-4-OCF <sub>3</sub>	150
230	C (Me) <sub>2</sub> C(=O)H	H	H	2-Me-4-OCF <sub>2</sub> CHFOC <sub>3</sub> F <sub>7</sub> -n	159

Table 1 (cont'd)

No.	$-A^1-B-R^1$	$R^2$	X	$Y_m$	Physical property
231	$C(Me)_2C(=O)H$	H	H	2-Me-4- $OCF_2CHFCF_3$	171
232	$C(Me)_2C(=O)H$	H	H	2-Me-4-O-(3-Cl-5- $CF_3$ -2-Pyr)	159
233	$C(Me)_2C(=O)H$	H	H	2-Me-4-Cl	229
234	$C(Me)_2C(=O)H$	H	H	2-Me-4- $CF_2CF_3$	87
235	$C(Me)_2C(=O)H$	H	H	2-Me-4- $CF_2CF_2CF_3$	143
236	$C(Me)_2C(=O)H$	H	H	2-Me-4- $CF(CF_3)_2$	214
237	$C(Me)_2C(=O)H$	H	3- $NO_2$	2-Me-4- $CF(CF_3)_2$	262
238	$C(Me)_2C(=O)H$	H	3-F	2-Me-4- $CF(CF_3)_2$	146
239	$C(Me)_2C(=O)H$	H	3,4- $Cl_2$	2-Me-4- $CF(CF_3)_2$	166
240	$(CH_2)_2C(=O)H$	H	3-I	2-Me-4- $CF(CF_3)_2$	128
241	$CH(CH_2SO_2Me)C(=O)H$	H	3-I	2-Me-4- $CF(CF_3)_2$	106
242	$C(Me)(CH_2SO_2Me)-C(=O)H$	H	3-I	2-Me-4- $CF(CF_3)_2$	118
243	$C(Me)(CH_2SO_2Et)-C(=O)H$	H	3-I	2-Me-4- $CF(CF_3)_2$	103
244	$C(Me)_2CH=NOH$	H	H	2-Me-4- $OCF_2CHFCF_3$	150
245	$C(Me)_2CH=NOH$	H	H	2-Me-4- $CF_2CF_3$	182
246	$C(Me)_2CH=NOH$	H	3-I	2-Me-4- $CF_2CF_3$	189
247	$C(Me)_2CH=NOH$	H	3-F	2-Me-4- $CF(CF_3)_2$	242
248	$C(Me)_2CH=NOH$	H	3-I	2-Me-4- $CF(CF_3)_2$	218
249	$C(Me)(CH_2SO_2Me)CH=NOH$	H	3-I	2-Me-4- $CF(CF_3)_2$	106
250	$C(Me)(CH_2SO_2Et)CH=NOH$	H	3-I	2-Me-4- $CF(CF_3)_2$	112
251	$CH_2CH=NOMe$	Me	H	2-Me-4- $CF(CF_3)_2$	127
252	$CH(Me)CH=NOMe$	H	H	2-Me-4- $OCF_3$	133

Table 1 (cont'd)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	R <sup>2</sup>	X	Y <sub>m</sub>	Physical property
253	CH (Me) CH=NOMe	H	3-I	2-Me-4-OCF <sub>3</sub>	159
254	CH (Me) CH=NOMe	H	3-Br	2-Me-4-OCF <sub>3</sub>	168
255	CH (Me) CH=NOMe	H	H	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	130
256	CH (Me) CH=NOMe	H	3-I	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	110
257	CH (Me) CH=NOMe	H	3-Cl	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	154
258	CH (Me) CH=NOMe	H	3-Br	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	162
259	CH (Me) CH=NOMe	H	H	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	154
260	CH (Me) CH=NOMe	H	3-OCF <sub>3</sub>	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	165
261	C (Me) <sub>2</sub> CH=NOMe	H	H	2-Me-4-OCHF <sub>2</sub>	170
262	C (Me) <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-OCHF <sub>2</sub>	184 (E-form)
263	C (Me) <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-OCHF <sub>2</sub>	182 (Z-form)
264	C (Me) <sub>2</sub> CH=NOMe	H	H	2-Me-4-OCF <sub>3</sub>	195
265	C (Me) <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-OCF <sub>3</sub>	191
266	C (Me) <sub>2</sub> CH=NOMe	H	3-Cl	2-Me-4-OCF <sub>3</sub>	199
267	C (Me) <sub>2</sub> CH=NOMe	H	3-Br	2-Me-4-OCF <sub>3</sub>	184
268	C (Me) <sub>2</sub> CH=NOMe	H	3,4-Cl <sub>2</sub>	2-Me-4-OCF <sub>3</sub>	212
269	C (Me) <sub>2</sub> CH=NOMe	H	H	2-Me-4-OCF <sub>2</sub> CHF <sub>2</sub>	174
270	C (Me) <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-OCF <sub>2</sub> CHF <sub>2</sub>	185
271	C (Me) <sub>2</sub> CH=NOMe	H	H	2-Me-4-OCF <sub>2</sub> CHF <sub>2</sub> CF <sub>3</sub>	160
272	C (Me) <sub>2</sub> CH=NOMe	H	H	2-Me-4-OCF <sub>2</sub> CHFOC <sub>3</sub> F <sub>7</sub> -n	140

Table 1 (cont'd)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	R <sup>2</sup>	X	Y <sub>m</sub>	Physical property
273	C (Me) <sub>2</sub> CH=NOMe	H	H	2-Me-4-O- (3-Cl-5-CF <sub>3</sub> -2-Pyr)	151
274	C (Me) <sub>2</sub> CH=NOMe	H	H	2-Me-4-Cl	178
275	C (Me) <sub>2</sub> CH=NOMe	H	H	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	200
276	C (Me) <sub>2</sub> CH=NOMe	H	3-I-4-Cl	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	225
277	C (Me) <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	147
278	C (Me) <sub>2</sub> CH=NOMe	H	3-Cl	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	202
279	C (Me) <sub>2</sub> CH=NOMe	H	3-Br	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	207
280	C (Me) <sub>2</sub> CH=NOMe	H	H	2-Me-4-CF <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	174
281	C (Me) <sub>2</sub> CH=NOMe	H	H	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	178
282	C (Me) <sub>2</sub> CH=NOMe	H	4-CF <sub>3</sub>	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	155
283	C (Me) <sub>2</sub> CH=NOMe	H	3-OCF <sub>3</sub>	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	186
284	C (Me) <sub>2</sub> CH=NOMe	H	3-F	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	199
285	C (Me) <sub>2</sub> CH=NOMe	H	3-Cl	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	234
286	C (Me) <sub>2</sub> CH=NOMe	H	3-Br	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	243
287	C (Me) <sub>2</sub> CH=NOMe	H	3,4-Cl <sub>2</sub>	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	207
288	C (Me) <sub>2</sub> CH=NOMe	H	H	2-Cl-4-CF <sub>3</sub>	154
289	C (Me) <sub>2</sub> CH=NOMe	H	3-I	2-Cl-4-CF <sub>3</sub>	167
290	C (Me) <sub>2</sub> CH=NOEt	H	H	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	157
291	C (Me) <sub>2</sub> CH=NOEt	H	3-I	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	119
292	CH (Me) CH=NOPr-n	H	H	2-Me-4-CF (CF <sub>3</sub> ) <sub>2</sub>	172
293	CH (Me) CH=NOCH <sub>2</sub> Pr-c	H	H	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	91
294	CH (Me) CH=NOCH <sub>2</sub> CH <sub>2</sub> SEt	H	H	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	paste
295	CH (Me) CH=NOCH <sub>2</sub> CH <sub>2</sub> OEt	H	H	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	paste

Table 1 (cont'd)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	R <sup>2</sup>	X	Ym	Physical property
296	CH(Me)CH=NOCH <sub>2</sub> CH=CH <sub>2</sub>	H	H	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	172
297	C(Me) <sub>2</sub> CH=NOCH <sub>2</sub> CO <sub>2</sub> Et	H	3-I	2-Me-4-CF <sub>2</sub> CF <sub>3</sub>	
298	C(Me) <sub>2</sub> CH=NOCH <sub>2</sub> CO <sub>2</sub> Bu-t	H	H	2-Me-4-OCF <sub>3</sub>	153
299	C(Me) <sub>2</sub> CH=NOCH <sub>2</sub> CONHEt	H	H	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
300	C(Me) <sub>2</sub> CH=NOCH <sub>2</sub> CONHEt	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
301	C(Me) <sub>2</sub> CH=NOCH <sub>2</sub> CON(Et) <sub>2</sub>	H	H	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
302	C(Me) <sub>2</sub> CH=NOCH <sub>2</sub> CON(Et) <sub>2</sub>	H	H	2-Me-4-OCF <sub>3</sub>	131
303	C(Me) <sub>2</sub> CH=NOCH <sub>2</sub> CON(Et) <sub>2</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
304	(CH <sub>2</sub> ) <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	197
305	(CH <sub>2</sub> ) <sub>3</sub> CH=NOMe	H	H	2-Me-4-OCF <sub>3</sub>	108
306	(CH <sub>2</sub> ) <sub>3</sub> CH=NOEt	H	H	2-Me-4-OCF <sub>3</sub>	107
307	(CH <sub>2</sub> ) <sub>4</sub> CH=NOMe	H	H	2-Me-4-OCF <sub>3</sub>	110
308	(CH <sub>2</sub> ) <sub>4</sub> CH=NOEt	H	H	2-Me-4-OCF <sub>3</sub>	117
309	CH(Me)CH <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	170
310	C(Me) <sub>2</sub> CH=NOMe	H	3-I	2-Me-4-OCF <sub>2</sub> CHF <sub>2</sub> CF <sub>3</sub>	188
311	C(Me) <sub>2</sub> CH=NOMe	H	H	2-Me-4-O-(3-Cl-5-CF <sub>3</sub> -2-Pyr)	170
312	C(Me) <sub>2</sub> CH=NOMe	H	H	3-OCF <sub>2</sub> O-4	181
313	C(Me) <sub>2</sub> CH=NOMe	H	H	3-OCF <sub>2</sub> CF <sub>2</sub> O-4	191
314	CH(Me)CH=NOCH <sub>2</sub> Pr-c	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	142
315	CH(Me)CH=NOCH <sub>2</sub> CH <sub>2</sub> SEt	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	165
316	CH(Me)CH=NOCH <sub>2</sub> CH <sub>2</sub> OEt	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	107
317	CH(Me)CH=NOCH <sub>2</sub> CH=CH <sub>2</sub> OEt	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	103
318	C(Me) <sub>2</sub> CH=NOCH <sub>2</sub> COOBu-t	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	101
319	C(Me) <sub>2</sub> CH=NOCH <sub>2</sub> CONEt <sub>2</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	97



Table 1 (cont'd)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	R <sup>2</sup>	X	Ym	Physical property
320	CH (Me) CONHCH <sub>2</sub> CH <sub>2</sub> OMe	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	200
321	CH (Me) CONHCH <sub>2</sub> CH <sub>2</sub> - CH <sub>2</sub> SMe	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	203
322	CH (Me) CONHCH <sub>2</sub> CF <sub>3</sub>	H	3-I	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	236

Table 2 (Q<sup>1</sup>=Q<sup>2</sup>=Q<sup>3</sup>=Q<sup>4</sup>=Q<sup>5</sup>=C, Z<sup>1</sup>=S, Z<sup>2</sup>=O, R<sup>3</sup>=H)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	R <sup>2</sup>	X	Ym	Physical property
II-1	CH (Me) CH=NOMe	H	3-Cl	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
II-2	CH (Me) C (Me) =NOMe	H	H	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
II-3	CH (Me) CH <sub>2</sub> CO <sub>2</sub> Et	H	3-Cl	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
II-4	CH (Me) CON (Et) <sub>2</sub>	H	3-Cl	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
II-5	CH (Me) CH <sub>2</sub> CONHEt	H	3-Cl	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	

Table 3 ( $R^2=R^3=H$ ,  $Z^1=Z^2=O$ )

No.	$-A^1-B-R^1$	$Q^1$	$Q^2$	$Q^3$	$Q^4$	$Q^5$	Ym	Physical Property
III-1	CH(Me)CONHMe	C-I	CH	CH	CH	N	2-Me-6-OCF(CF <sub>3</sub> ) <sub>2</sub>	
III-2	CH(Me)CON(Me) <sub>2</sub>	C-I	CH	CH	CH	N	2-Me-6-OCF(CF <sub>3</sub> ) <sub>2</sub>	
III-3	C(Me) <sub>2</sub> CH=NOH	C-I	CH	CH	CH	N	2-Me-6-OCF(CF <sub>3</sub> ) <sub>2</sub>	192
III-4	C(Me) <sub>2</sub> CH=NOMe	CH	CH	CH	CH	N	2-Me-6-OCF(CF <sub>3</sub> ) <sub>2</sub>	
III-5	C(Me) <sub>2</sub> CH=NOMe	C-I	CH	CH	CH	N	2-Me-6-OCF(CF <sub>3</sub> ) <sub>2</sub>	198
III-6	CH(Me)CONHEt	CH	CH	CH	CH	N	2-Me-6-OCF(CF <sub>3</sub> ) <sub>2</sub>	220
III-7	CH(Me)CON(Et) <sub>2</sub>	CH	CH	CH	CH	N	2-Me-6-OCF(CF <sub>3</sub> ) <sub>2</sub>	
III-8	CH(Me)C(=O)H	CH	CH	CH	CH	N	2-Me-6-OCF(CF <sub>3</sub> ) <sub>2</sub>	
III-9	CH(Me)CH=NOH	CH	CH	CH	CH	N	2-Me-6-OCF(CF <sub>3</sub> ) <sub>2</sub>	101
III-10	CH(Me)CH=NOMe	CH	CH	CH	CH	N	2-Me-6-OCF(CF <sub>3</sub> ) <sub>2</sub>	105
III-11	CH(Me)CH=NOMe	C-I	CH	CH	CH	N	2-Me-6-OCF(CF <sub>3</sub> ) <sub>2</sub>	160
III-12	CH(Me)CONHEt	CH	CH	CH	CH	N	2-Me-6-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-13	CH(Me)CON(Et) <sub>2</sub>	CH	CH	CH	CH	N	2-Me-6-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-14	C(Me) <sub>2</sub> CH=NOH	CH	CH	CH	CH	N	2-Me-6-CF(CF <sub>3</sub> ) <sub>2</sub>	208
III-15	C(Me) <sub>2</sub> CH=NOMe	CH	CH	CH	CH	N	2-Me-6-CF(CF <sub>3</sub> ) <sub>2</sub>	162
III-16	C(Me) <sub>2</sub> CH=NOMe	C-I	CH	CH	CH	N	2-Me-6-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-17	CH(Me)CONHEt	CH	CH	CH	CH	N	2-Me-6-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-18	CH(Me)CON(Et) <sub>2</sub>	CH	CH	CH	CH	N	2-Me-6-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-19	CH(Me)C(=O)H	CH	CH	CH	CH	N	2-Me-6-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-20	CH(Me)CH=NOH	CH	CH	CH	CH	N	2-Me-6-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-21	CH(Me)CH=NOMe	CH	CH	CH	CH	N	2-Me-6-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-22	CH(Me)CH=NOMe	C-I	CH	CH	CH	N	2-Me-6-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-23	CH(Me)CONHEt	N	CH	CH	CH	CH	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-24	CH(Me)CH=NOMe	N	CH	CH	CH	CH	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	

Table 3 (cont'd)

No.	-A <sup>1</sup> -B-R <sup>1</sup>	Q <sup>1</sup>	Q <sup>2</sup>	Q <sup>3</sup>	Q <sup>4</sup>	Q <sup>5</sup>	Ym	Physical Property
III-25	CH(Me)CON(Et) <sub>2</sub>	CH	N	CH	CH	CH	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-26	CH(Me)CH=NOMe	CH	N	CH	CH	CH	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	180
III-27	CH(Me)CONHET	CH	CH	N	CH	CH	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-28	CH(Me)CH=NOMe	CH	CH	N	CH	CH	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-29	CH(Me)CON(Et) <sub>2</sub>	CH	CH	CH	N	CH	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-30	CH(Me)CH=NOMe	CH	CH	CH	N	CH	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	153
III-31	CH(Me)CH=NOMe	N	CH	N	CH	CH	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-32	CH(Me)CH=NOMe	CH	N	CH	N	CH	2-Me-4-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-33	CH(Me)CON(Et) <sub>2</sub>	CH	CH	N	CH	N	2-Me-6-OCF(CF <sub>3</sub> ) <sub>2</sub>	
III-34	CH(Me)CH=NOMe	CH	CH	N	CH	N	2-Me-6-OCF(CF <sub>3</sub> ) <sub>2</sub>	
III-35	CH(Me)CON(Et) <sub>2</sub>	CH	CH	N	CH	N	2-Me-6-CF(CF <sub>3</sub> ) <sub>2</sub>	
III-36	CH(Me)CH=NOMe <sub>2</sub>	CH	CH	N	CH	N	2-Me-6-CF(CF <sub>3</sub> ) <sub>2</sub>	

Note: In the Table 3, when Q<sup>5</sup> represents nitrogen atom, then said nitrogen atom is 1-position and the substituted position of Ym is determined thereby.

The agrohorticultural composition, particularly, agrohorticultural insecticides containing the aromatic diamide derivative represented by the formula (I) or salt thereof of the present invention as

5 an active ingredient are suitable for controlling various insect pests such as agrohorticultural insect pests, stored grain insect pests, sanitary insect pests, nematodes, etc., which are injurious to paddy rice, fruit trees, vegetables, other crops, flowers,

10 ornamental plants, etc. They have a marked insecticidal effect, for example, on LEPIDOPTERA including summer fruit tortrix (Adoxophes orana fasciata), smaller tea tortrix (Adoxophyes sp.), Manchurian fruit moth (Grapholita inopinata), oriental

15 fruit moth (Grapholita molesta), soybean pod border (Leguminovora glycinivorella), mulberry leafroller (Olethreutes mori), tea leafroller (Caloptilia thevivora), Caloptilia sp. (Caloptilia zachrysa), apple leafminer (Phyllonorycter ringoniella), pear barkminer

20 (Spulerrina astaurota), common white (Piers rapae crucivora), tobacco budworm (Heliothis sp.), codling moth (Laspey resia pomonella), diamondback moth (Plutella xylostella), apple fruit moth (Argyresthia conjugella), peach fruit moth (Carposina niponensis),

25 rice stem borer (Chilo suppressalis), rice leafroller (Cnaphalocrocis medinalis), tobacco moth (Ephestia elutella), mulberry pyralid (Glyphodes pyloalis), yellow rice borer (Scirpophaga incertulas), rice

- skipper (Parnara guttata), rice armyworm (Pseudaletia separata), pink borer (Sesamia inferens), common cutworm (Spodoptera litura), beet armyworm (Spodoptera exigua), etc.; HEMIPTERA including aster leafhopper
- 5 (Macrostelus fascifrons), green rice leafhopper (Nephotettix cincticeps), brown rice planthopper (Nilaparvata lugens), whitebacked rice planthopper (Sogatella furcifera), citrus psylla (Diaphorina citri), grape whitefly (Aleurolibus taenabae),
- 10 sweetpotato whitefly (Bemisia tabaci), greenhouse whitefly (Trialeurodes vaporariorum), turnup aphid (Lipaphis erysimi), green peach aphid (Myzus persicae), Indian wax scale (Ceroplastes ceriferus), cottony citrus scale (Pulvinaria aurantii), camphor scale
- 15 (Pseudaonidia duplex), san Jose scale (Comstockaspis perniciosus), arrowhead scale (Unapsis yanonensis), etc.; TYLENCHIDA including soybean beetle (Anomala rufocuprea), Japanese beetle (Popillia japonica), tobacco beetle (Lasioderma serricornis), powderpost
- 20 beetle (Lyctus brunneus), twenty-eight-spotted ladybird (Epilachna vigintioctopunctata), azuki bean weevil (Callosobruchus chinensis), vegetable weevil (Listroderes costirostris), maize weevil (Sitophilus zeamais), boll weevil (Anthonomus grandis grandis), rice
- 25 water weevil (Lissorhoptrus oryzophilus), cucurbit leaf beetle (Aulacophora femoralis), rice leaf beetle (Oulema oryzae), striped flea beetle (Phyllotreta striolata), pine shoot beetle (Tomicus piniperda),

Colorado potato beetle (Leptinotarsa decemlineata),  
 Mexican bean beetle (Epilachna varivestis), corn  
 rootworm (Diabrotica sp.), etc.; DIPTERA including  
 (Dacus(Zeugodacus) cucurbitae), oriental fruit fly  
 5 (Dacus(Bactrocera) dorsalis), rice leafminer (Agnomyza  
oryzae), onion maggot (Delia antiqua), seedcorn maggot  
 (Delia platura), soybean pod gall midge (Asphondylia  
sp.), muscid fly (Musca domestica), house mosquito  
 (Culex pipiens pipiens), etc.; and TYLENCHIDA including  
 10 root-lesion nematode (Pratylenchus sp.), coffee root-  
 lesion nematode (Pratylenchus coffeae), potato cyst  
 nematode (Globodera rostochiensis), root-knot nematode  
 (Meloidogyne sp.), citrus nematode (Tylenchulus  
semipenetrans), Aphelenchus sp. (Aphelenchus avenae),  
 15 chrysanthemum foliar (Aphelenchoides ritzemabosi), etc.

The agrohorticultural composition,  
 particularly, agrohorticultural insecticides containing  
 the aromatic diamide derivative represented by formula  
 (I) or salt thereof of the present invention has a  
 20 marked controlling effect on the above-exemplified  
 insect pests, sanitary pests and/or nematodes, which  
 are injurious to paddy field crops, upland crops, fruit  
 trees, vegetables and other crops, flowers and ornament  
 plants, and the like. Therefore, the desired effect of  
 25 the agrohorticultural insecticide of the present  
 invention can be exhibited by applying the insecticide  
 to the paddy field water, stalks and leaves or soil of  
 paddy field, upland field, fruit trees, vegetables,

other crops or flowers and ornament plants at a season at which the insect pests, sanitary pests or nematodes are expected to appear, before their appearance or at the time when their appearance is confirmed.

5           In general, the agrohorticultural composition of the present invention is used after being prepared into conveniently usable forms according to ordinary manner for preparation of agrochemicals.

10           That is, the aromatic diamide derivative of formula (I) or salt thereof and an appropriate carrier are blended optionally together with an adjuvant in a proper proportion and prepared into a suitable preparation form such as suspension, emulsifiable concentrate, soluble concentrate, wettable powder, 15 granules, dust or tablets through dissolution, separation, suspension, mixing, impregnation, adsorption or sticking.

          The inert carrier used in the present invention may be either solid or liquid. As the solid 20 carrier, soybean flour, cereal flour, wood flour, bark flour, saw dust, powdered tobacco stalks, powdered walnut shells, bran, powdered cellulose, extraction residues of vegetables, powdered synthetic polymers or resins, clay (e.g. kaolin, bentonite and acid clay), 25 talc (e.g. talc and pyrophyllite), silica materials (e.g. diatomaceous earth, siliceous sand, mica, white carbon, i.e. synthetic high-dispersion silicic acid, also called finely divided hydrated silica or hydrated

silicic acid, some of the commercially available products contain calcium silicate as the major component), activated carbon, powdered sulfur, pumice, calcined diatomaceous earth, ground brick, fly ash, sand, calcium carbonate, calcium phosphate and other inorganic or mineral powders, chemical fertilizers such as ammonium sulfate, ammonium phosphate, ammonium nitrate, urea, ammonium chloride and the like, and compost. These carriers may be used either alone or as a mixture of two or more carriers.

The liquid carrier is that which itself has a solubility or which is without such solubility but is capable of dispersing an active ingredient with the aid of an adjuvant. The following are typical examples of the liquid carrier and can be used alone or as a mixture thereof. Water; alcohols such as methanol, ethanol, isopropanol, butanol and ethylene glycol; ketones such as acetone, methyl ethyl ketone, methyl isobutyl ketone, diisobutyl ketone and cyclohexanone; ethers such as ethyl ether, dioxane, cellosolve, dipropyl ether and tetrahydrofuran; aliphatic hydrocarbons such as kerosene and mineral oil; aromatic hydrocarbons such as benzene, toluene, xylene, solvent naphtha and alkyl naphthalene; halogenated hydrocarbons such as dichlorethane, chloroform, carbon tetrachloride and chlorobenzene; esters such as ethyl acetate, diisopropyl phthalate, dibutyl phthalate and dioctyl phthalate; amides such as dimethylformamide,



diethylformamide and dimethylacetamide; nitriles such as acetonitrile; and dimethyl sulfoxide.

The following are typical examples of the adjuvant, which are used depending upon purposes and  
5 used alone or in combination of two or more adjuvants in some cases, or need not to be used at all.

To emulsify, disperse, dissolve and/or wet an active ingredient, a surfactant is used. As the surfactant, there can be exemplified polyoxyethylene  
10 alkyl ethers, polyoxyethylene alkylaryl ethers, polyoxyethylene higher fatty acid esters, polyoxyethylene resinates, polyoxyethylene sorbitan monolaurate, polyoxyethylene sorbitan monooleate, alkylarylsulfonates, naphthalene-sulfonic acid  
15 condensation products, ligninsulfonates and higher alcohol sulfate esters.

Further, to stabilize the dispersion of an active ingredient, tackify it and/or bind it, there may be used adjuvants such as casein, gelatin, starch,  
20 methyl cellulose, carboxymethyl cellulose, gum arabic, polyvinyl alcohols, turpentine, bran oil, bentonite and ligninsulfonates.

To improve the flowability of a solid product, there may be used adjuvants such as waxes,  
25 stearates and alkyl phosphates.

Adjuvants such as naphthalenesulfonic acid condensation products and polycondensates of phosphates may be used as a peptizer for dispersible products.

Adjuvants such as silicone oil may also be used as a defoaming agent.

The content of the active ingredient may be varied according to the need. For example, in dusts or  
5 granules, the suitable content thereof is from 0.01 to 50% by weight. In emulsifiable concentrate and flowable wettable powder, too, the suitable content is from 0.01 to 50% by weight.

The agrohorticultural composition,  
10 particularly agrohorticultural insecticide of the present invention is used to control a variety of insect pests in the following manner. That is, it is applied to a crop on which the insect pests are expected to appear or a site where appearance of the  
15 insect pests is undesirable, as it is or after being properly diluted with or suspended in water or the like, in an amount effective for control of the insect pests.

The agrohorticultural composition,  
20 particularly the agrohorticultural insecticide of the present invention can also be used to, for example, seeds of plants to be protected from pests, or to cultivation carriers in which the above seeds are to be sown (e.g. sowing soil, nursery mat, water, etc.); and  
25 can be used by a method such as application to rice nursery bed, seed dressing, seed disinfection or the like. When applied to pests which verminate in upland crops such as fruit trees, grains, vegetables and the

like, it can be used by seed treatments such as dressing, soaking and the like, or by drenching or surface spraying/watering to, for example, seedling-raising carriers such as cultivation vessel, planting  
5 hole and the like to allow the crops to absorb the present insecticide, or by application to water culture solution for water culture.

The applying dosage of the agrohorticultural composition of the present invention is varied  
10 depending upon various factors such as a purpose, insect pests to be controlled, a growth state of a plant, tendency of insect pests appearance, weather, environmental conditions, a preparation form, an application method, an application site and an  
15 application time. It may be properly chosen in a range of 0.1 g to 10 kg (in terms of active ingredient compound) per 10 ares depending upon purposes.

The agrohorticultural composition of the present invention may be used in admixture with other  
20 agricultural and horticultural disease or pest controllers in order to expand both spectrum of controllable diseases and insect pest species and the period of time when effective applications are possible or to reduce the dosage.

25           Next, typical examples and test examples of the invention are presented below. The present invention is by no means limited by these examples.

## Examples

Representative examples of the present invention are shown below. However, the present invention is not restricted to these examples.

## 5 Example 1

(1-1) Production of 3-iodo-1-N-(4-heptafluoroisopropyl-2-methylphenyl)-phthalamic acid

A solution of 3.5 g of 4-heptafluoroisopropyl-2-methylaniline dissolved in 3 ml of  
10 acetonitrile was dropwise added slowly to a suspension of 3.5 g of 3-iodophthalic anhydride suspended in 30 ml of acetonitrile, with ice-cooling. After the completion of the dropwise addition, a reaction was conducted for 3 hours at room temperature, with  
15 stirring. After the completion of the reaction, the precipitated crystals were collected by filtration and washed with a small amount of acetonitrile to obtain 4.0 g of an intended compound.

Physical property: melting point = 174-181°C

20 Yield: 57%

(1-2) Production of 3-iodo-N-(4-heptafluoroisopropyl-2-methylphenyl)phthalisoimide

1.1 g of trifluoroacetic anhydride was added to a suspension of 2.0 g of 3-iodo-1-N-(4-heptafluoroisopropyl-2-methylphenyl)-phthalamic acid  
25 suspended in 10 ml of toluene. A reaction was conducted at room temperature for 30 minutes, with

stirring. After the completion of the reaction, the solvent was removed by vacuum distillation to obtain 2.0 g of a crude intended compound. The compound was used in the next reaction without being purified.

5  $^1\text{H-NMR}$  [ $\text{CDCl}_3/\text{TMS}$ ,  $\delta$  (ppm)]

2.4 (3H,s), 7.3 (1H,d), 7.4 (2H,m), 7.5  
(1H,t), 8.1 (1H,d), 8.2 (1H,d)

(1-3) Production of 3-iodo- $\text{N}^1$ -(4-heptafluoroisopropyl-  
2-methylphenyl)- $\text{N}^2$ -[1-methyl-2-(N,N-dimethylcarbamoyl)-  
10 ethyl]phthalamide (compound No. 77)

1.0 g of 3-iodo-N-(4-heptafluoroisopropyl-2-  
methylphenyl)phthalisoimide was dissolved in 10 ml of  
acetonitrile. To the resulting solution were added  
0.35 g of 3-amino-N,N-dimethylbutyramide hydrochloride  
15 and 0.21 g of triethylamine. The resulting mixture was  
stirred at room temperature for 10 hours to give rise  
to a reaction. After the completion of the reaction,  
the reaction mixture was poured into ice water,  
followed by extraction with ethyl acetate. The organic  
20 layer was washed with an aqueous sodium chloride  
solution and then dried over anhydrous magnesium  
sulfate. The solvent was removed by vacuum  
distillation, and the resulting residue was purified by  
silica gel column chromatography to obtain 0.4 g of an  
25 intended product.

Physical property: melting point =  $126^\circ\text{C}$

Yield: 32%

Example 2 Production of 3-iodo-N<sup>1</sup>-(4-heptafluoro-isopropyl-2-methylphenyl)-N<sup>2</sup>-[1-methyl-2-(methoxyimino)-ethyl]phthalamide (compound No. 136)

0.9 g of 3-iodo-N-(4-heptafluoroisopropyl-2-methylphenyl)phthalisoimide was dissolved in 10 ml of acetonitrile. To the resulting solution were added 0.34 g of 1-methyl-2-(methoxyimino)ethylamine hydrochloride and 0.25 g of triethylamine. The resulting mixture was stirred at room temperature for 10 hours to give rise to a reaction. After the completion of the reaction, the reaction mixture was poured into ice water, followed by extraction with ethyl acetate. The organic layer was washed with an aqueous sodium chloride solution and then dried over anhydrous magnesium sulfate. The solvent was removed by vacuum distillation, and the resulting residue was purified by silica gel column chromatography to obtain 0.36 g of an intended product.

Physical property: melting point = 192°C

Yield: 36%

### Example 3

(3-1) Production of 3-iodo-2-N-[1-methyl-2-(ethoxycarbonyl)ethyl]-phthalamic acid

A solution of 1.4 g of ethyl 3-aminobutyrate dissolved in 3 ml of acetonitrile was dropwise added slowly to a suspension of 2.7 g of 3-iodophthalic anhydride suspended in 30 ml of acetonitrile, with ice-

cooling. After the completion of the dropwise addition, a reaction was conducted for 3 hours at room temperature, with stirring. After the completion of the reaction, the precipitated crystals were collected  
5 by filtration and washed with a small amount of acetonitrile to obtain 3.8 g of an intended compound.

Yield: 97%

(3-2) Production of 6-iodo-N-[1-methyl-2-(ethoxycarbonyl)ethyl]phthalisoimide

10 1.1 g of trifluoroacetic anhydride was added to a suspension of 1.0 g of 3-iodo-2-N-[1-methyl-2-(ethoxycarbonyl)ethyl]phthalamic acid suspended in 10 ml of toluene. A reaction was conducted at room temperature for 30 minutes, with stirring. After the  
15 completion of the reaction, the solvent was removed by vacuum distillation to obtain 0.9 g of a crude intended compound. The compound was used in the next reaction without being purified.

(3-3) Production of 3-iodo-N<sup>1</sup>-(4-heptafluoroisopropyl-  
20 2-methylphenyl)-N<sup>2</sup>-[1-methyl-2-(ethoxycarbonyl)-ethyl]phthalamide (compound No. 11)

0.90 g of 6-iodo-N-[1-methyl-2-(ethoxycarbonyl)ethyl]phthalisoimide was dissolved in 10 ml of acetonitrile. To the resulting solution were  
25 added 0.5 g of 4-heptafluoroisopropyl-2-methylaniline and two drops of trifluoroacetic acid. The resulting mixture was stirred at room temperature for 10 hours to give rise to a reaction. After the completion of the

reaction, the reaction mixture was poured into ice water, followed by extraction with ethyl acetate. The organic layer was washed with an aqueous sodium chloride solution and then dried over anhydrous magnesium sulfate. The solvent was removed by vacuum distillation, and the resulting residue was purified by silica gel column chromatography to obtain 0.50 g of an intended product.

Physical property: paste-like

10

Yield: 31%

$^1\text{H-NMR}$  [ $\text{CDCl}_3/\text{TMS}$ ,  $\delta$  (ppm)]

1.1-1.4 (5H,m), 2.4 (3H,s), 2.5-2.6 (2H,m),  
4.1 (2H,q), 4.4-4.5 (1H,m), 6.8 (1H,d), 7.2  
(1H,t), 7.4-7.5 (2H,m), 7.8 (1H,d), 7.9  
15 (1H,d), 8.3 (1H,d), 8.5 (1H,s)

Example 4 Production of 3-iodo- $\text{N}^1$ -(4-heptafluoroisopropyl-2-methylphenyl)- $\text{N}^2$ -(3-oxobutan-2-yl)-phthalamide (compound No. 134)

1.5 g of 3-iodo-N-(4-heptafluoroisopropyl-2-methylphenyl)phthalisoimide was dissolved in 10 ml of acetonitrile. To the resulting solution were added 0.35 g of 3-aminobutanone hydrochloride and 0.29 g of triethylamine. The resulting mixture was stirred at room temperature for 10 hours to give rise to a  
25 reaction. After the completion of the reaction, the reaction mixture was poured into ice water, followed by extraction with ethyl acetate. The organic layer was



washed with an aqueous sodium chloride solution and then dried over anhydrous magnesium sulfate. The solvent was removed by vacuum distillation, and the resulting residue was purified by silica gel column chromatography to obtain 0.70 g of an intended product.

Physical property: melting point = 189°C

Yield: 41%

Next, typical formulation examples and test examples of the invention are presented below. The present invention is by no means limited by these examples.

In the formulation examples, the term "parts" means "parts by weight".

#### Formulation Example 1

15	Each compound listed in Tables 1 to 3	50 parts
	Xylene	40 parts
	Mixture of polyoxyethylene nonylphenyl ether and calcium alkylbenzenesulfonate	10 parts

An emulsifiable concentrate was prepared by mixing uniformly the above ingredients to effect dissolution.

#### Formulation Example 2

	Each compound listed in Tables 1 to 3	3 parts
	Clay powder	82 parts
25	Diatomaceous earth powder	15 parts

A dust was prepared by mixing uniformly and

grinding the above ingredients.

### Formulation Example 3

	Each compound listed in Tables 1 to 3	5 parts
	Mixed powder of bentonite and clay	90 parts
5	Calcium ligninsulfonate	5 parts

Granules were prepared by mixing the above ingredients uniformly, and kneading the resulting mixture together with a suitable amount of water, followed by granulation and drying.

### 10 Formulation Example 4

	Each compound listed in Tables 1 to 3	20 parts
	Mixture of kaolin and synthetic	
	high-dispersion silicic acid	75 parts
	Mixture of polyoxyethylene nonylphenyl	
15	ether and calcium alkylbenzenesulfonate	5 parts

A wettable powder was prepared by mixing uniformly and grinding the above ingredients.

### Formulation Example 5

	Each compound listed in Tables 1 to 3	20 parts
20	Sodium alkyl naphthalenesulfonate	3 parts
	Propylene glycol	5 parts
	Dimethylpolysiloxane	0.25 part
	p-Chloro-m-xyleneol	0.10 part
	Xanthan gum	0.30 part
25	Water	71.35 part

A wettable powder or wettable suspension was prepared by mixing uniformly and wet-grinding the above ingredients.

Test Example 1: Insecticidal effect on diamond back  
5 moth (Plutella xylostella)

Adult diamond back moths were released and allowed to oviposit on a Chinese cabbage seedling. Two days after the release, the seedling having the eggs deposited thereon was immersed for about 30 seconds in  
10 a liquid chemical prepared by diluting a preparation containing each compound listed in Tables 1 to 3 as an active ingredient to adjust the concentration to 50 ppm. After air-dryness, it was allowed to stand in a room thermostatted at 25°C. Six days after the  
15 immersion, the hatched insects were counted. The mortality was calculated according to the following equation and the insecticidal effect was judged according to the criterion shown below. The test was carried out with triplicate groups of 10 insects.

$$\text{Corrected mortality(\%)} = \frac{\begin{array}{c} \text{Number of} \\ \text{hatched insects} \\ \text{in untreated group} \end{array} - \begin{array}{c} \text{Number of} \\ \text{hatched insects} \\ \text{in treated group} \end{array}}{\begin{array}{c} \text{Number of} \\ \text{hatched insects} \\ \text{in untreated group} \end{array}} \times 100$$

20 Criterion:

A --- Mortality 100%

B --- Mortality 99-90%

C --- Mortality 89-80%

D --- Mortality 79-50%

Test Example 2: Insecticidal effect on Common cutworm  
(Spodoptera litura)

- 5                   A piece of cabbage leaf (cultivar; Shikidori)  
was immersed for about 30 seconds in a liquid chemical  
prepared by diluting a preparation containing each  
compound listed in Tables 1 to 3 as an active  
ingredient to adjust the concentration to 500 ppm.
- 10 After air-dryness, it was placed in a plastic Petri  
dish with a diameter of 9 cm and inoculated with  
second-instar larvae of common cutworm, after which the  
dish was closed and then allowed to stand in a room  
thermostatted at 25°C. Eight days after the
- 15 inoculation, the dead and alive were counted. The  
mortality was calculated according to the following  
equation and the insecticidal effect was judged  
according to the criterion shown in Test Example 1.  
The test was carried out with triplicate groups of 10
- 20 insects.

$$\text{Corrected mortality(\%)} = \frac{\begin{array}{c} \text{Number of} \\ \text{alive larvae in} \\ \text{untreated group} \end{array} - \begin{array}{c} \text{Number of} \\ \text{alive larvae in} \\ \text{treated group} \end{array}}{\begin{array}{c} \text{Number of} \\ \text{alive larvae in} \\ \text{untreated group} \end{array}} \times 100$$

Test Example 3: Insecticidal effect on smaller tea  
tortrix (Adxophyes sp.)

Tea leaves were immersed for about 30 seconds in a liquid chemical prepared by diluting a preparation containing each compound listed in Tables 1 to 3 as an active ingredient to adjust the concentration to 50 ppm. After air-dryness, the tea leaves were placed in a plastic Petri dish with a diameter of 9 cm and inoculated with larvae of smaller tea tortrix, after which the dish was allowed to stand in a room thermostatted at 25°C and having a humidity of 70%. Eight days after the inoculation, the dead and alive were counted and the insecticidal effect was judged according to the criterion shown in Test Example 1. The test was carried out with triplicate groups of 10 insects.

In the test mentioned above, the compounds which exhibited an activity ranking B or higher against diamond back moth (Plutella xylostella) were as follows:

2~11, 70~78, 134, 136~141, 177, 204, 205, 207, 215~219, 226, 229, 230~237, 239, 241~296, 298, 302, 304, 306, 309, III-3, III-5, III-9~III-11, III-14, III-15, III-26 and III-30.

Further, the compounds which exhibited an activity ranking B or higher against Common cutworm (Spodoptera litura) were as follows:

11, 71~74, 77, 78, 136~140, 204, 205, 207, 216, 226, 246, 248, 256, 258, 260, 263, 265, 272, 275, 277~279, 284~286, 291, 292, 309, III-3, III-5 and III-11.

Furthermore, the compounds which exhibited an activity ranking B or higher against smaller tea tortrix (Adxophyes sp.) were as follows:

7, 11, 70~72, 74~78, 134, 136~140, 204, 205, 207, 216,  
5 218, 219, 226, 246~250, 253, 254, 256, 258, 259, 263,  
265, 266, 271~273, 275~279, 281, 283, 285, 286, 290,  
291, 296, 298, 304, 309, III-3, III-5, III-10, III-11,  
III-15 and III-26.



alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups and phenyl group; a (C<sub>3</sub>-C<sub>8</sub>)alkynylene group; or a substituted (C<sub>3</sub>-C<sub>8</sub>)alkynylene group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups and phenyl group;

in the (C<sub>1</sub>-C<sub>8</sub>)alkylene group, the substituted (C<sub>1</sub>-C<sub>8</sub>) alkylene group, the (C<sub>3</sub>-C<sub>8</sub>)alkenylene group, the substituted (C<sub>3</sub>-C<sub>8</sub>) alkenylene group, the (C<sub>3</sub>-C<sub>8</sub>)-alkynylene group or the substituted (C<sub>3</sub>-C<sub>8</sub>)alkynylene group, any saturated carbon atom may be substituted with a (C<sub>2</sub>-C<sub>5</sub>)alkylene group to form a (C<sub>3</sub>-C<sub>6</sub>)cycloalkane ring; further in the (C<sub>1</sub>-C<sub>8</sub>)alkylene group, the substituted (C<sub>1</sub>-C<sub>8</sub>) alkylene group, the (C<sub>3</sub>-C<sub>8</sub>)alkenylene group or the substituted (C<sub>3</sub>-C<sub>8</sub>) alkenylene group, any two carbon atoms may be combined with an alkylene group or an alkenylene group to form a (C<sub>3</sub>-C<sub>6</sub>)cycloalkane ring or a (C<sub>3</sub>-C<sub>6</sub>)cycloalkene ring;

B is -CO- or -C(=N-OR<sup>4</sup>)- (wherein R<sup>4</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group; or a substituted phenyl(C<sub>1</sub>-



C<sub>4</sub>)alkyl group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups);

R<sup>1</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)alkylamino group wherein the two alkyl groups may be the same or different; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl

groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a phenylamino group; a substituted phenylamino group having, on the ring, one or more same or different substituents selected from

5 halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl

10 groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyloxy group; a substituted phenyloxy group having one or more same or

15 different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-

20 C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a phenylthio group; a

25 substituted phenylthio group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy

groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups;

R<sup>1</sup> may bond with A<sup>1</sup> to form a 4- to 7-membered ring which may contain, as a ring-constituting atom(s), one or two same or different atoms selected from oxygen, sulfur and nitrogen atoms;

R<sup>2</sup> and R<sup>3</sup> may be the same or different and are each a hydrogen atom, a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group or -A<sup>2</sup>-R<sup>5</sup> [wherein A<sup>2</sup> is -C(=O)-, -C(=S)-, -C(=NR<sup>6</sup>)- (wherein R<sup>6</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)-alkylamino group wherein the two alkyl groups may be

the same or different; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; or a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups), a (C<sub>1</sub>-C<sub>8</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>8</sub>)alkylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>3</sub>-C<sub>6</sub>)alkynylene group;

(1) when A<sup>2</sup> is -C(=O)-, -C(=S)- or -C(=NR<sup>6</sup>)- (wherein R<sup>6</sup> has the same definition as given above), R<sup>5</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino

groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same

5 or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-

10 alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; or -A<sup>3</sup>-R<sup>7</sup> (wherein A<sup>3</sup> is -O-, -S-

15 or -N(R<sup>8</sup>)- (wherein R<sup>8</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)-alkylcarbonyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylcarbonyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenylcarbonyl group; a substituted phenylcarbonyl group having one or more same or different substituents selected from halogen

20 atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups,

25 halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a phenyl(C<sub>1</sub>-C<sub>4</sub>)alkoxycarbonyl

group; or a substituted phenyl(C<sub>1</sub>-C<sub>4</sub>)alkoxycarbonyl group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups); and R<sup>7</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkylcarbonyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylcarbonyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl

groups; a phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group; a substituted phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups);

(2) when A<sup>2</sup> is a (C<sub>1</sub>-C<sub>8</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>8</sub>)alkylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>3</sub>-C<sub>6</sub>)alkynylene group, R<sup>5</sup> is a hydrogen atom; a halogen atom; a cyano group; a nitro group; a (C<sub>3</sub>-C<sub>6</sub>)-

cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>4</sup>-R<sup>9</sup> (wherein A<sup>4</sup> is -O-, -S-, -SO-, -SO<sub>2</sub>-, -N(R<sup>8</sup>)- (R<sup>8</sup> has the same definition as given above), -C(=O)- or -C(=NOR<sup>4</sup>)- (R<sup>4</sup> has the same definition as given above);

(i) when A<sup>4</sup> is -O-, -S-, -SO-, -SO<sub>2</sub>- or -N(R<sup>8</sup>)-



(R<sup>8</sup> has the same definition as given above), R<sup>9</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkylcarbonyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)-alkylcarbonyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from

halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group; a substituted phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or

- different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group,
- 5 (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups,
- 10 mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups;
- (ii) when A<sup>4</sup> is -C(=O)- or -C(=N-OR<sup>4</sup>)- (R<sup>4</sup> has the same definition as given above), R<sup>9</sup> is a hydrogen
- 15 atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a
- 20 mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)alkylamino group wherein the two alkyl groups may be the same or different; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group,
- 25 (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)-

- alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a
- 5 phenylamino group; a substituted phenylamino group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups,
- 10 (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups
- 15 may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyloxy group; a substituted phenyloxy group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups,
- 20 (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a
- 25 phenylthio group; a substituted phenylthio group having, on the ring, one or more same or different

substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups)];

R<sup>2</sup> may bond with A<sup>1</sup> or R<sup>1</sup> to form a 4- to 7-membered ring which may contain, as a ring-constituting atom(s), one or two same or different atoms selected from oxygen, sulfur and nitrogen atoms;

Q<sup>1</sup> to Q<sup>4</sup> may be the same or different and are each a nitrogen atom or a carbon atom which may be substituted with X, and X may be the same or different,

- and is a halogen atom; a cyano group; a nitro group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or
- 5 different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-
- 10 C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a
- 15 substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio
- 20 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-
- 25 alkoxycarbonyl groups; or -A<sup>5</sup>-R<sup>10</sup> [wherein A<sup>5</sup> is -O-, -S-, -SO-, -SO<sub>2</sub>-, -C(=O)-, -C(=NOR<sup>4</sup>)- (R<sup>4</sup> has the same definition as given above), a (C<sub>1</sub>-C<sub>6</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>6</sub>)alkylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a

halo(C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a C<sub>2</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>2</sub>-C<sub>6</sub>)alkynylene group;

- (1) when A<sup>5</sup> is -O-, -S-, -SO- or -SO<sub>2</sub>-, R<sup>10</sup> is a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkenyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>6</sup>-R<sup>11</sup> (wherein A<sup>6</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>6</sub>)-alkylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>3</sub>-C<sub>6</sub>)-

- alkenylene group, a (C<sub>3</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>3</sub>-C<sub>6</sub>)alkynylene group, and R<sup>11</sup> is a hydrogen atom; a halogen atom; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>7</sup>-R<sup>12</sup> (wherein A<sup>7</sup> is -O-, -S-, -SO- or -SO<sub>2</sub>-, and R<sup>12</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino

- groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups));
- (2) when A<sup>5</sup> is -C(=O)- or -C(=NOR<sup>4</sup>)- (R<sup>4</sup> has the same definition as given above), R<sup>10</sup> is a (C<sub>1</sub>-C<sub>6</sub>)-alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)alkylamino group wherein the two alkyl groups may be the same or different; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-



- alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-
- 5 alkoxy carbonyl groups; a phenylamino group; a substituted phenylamino group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups,
- 10 halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)-alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein
- 15 the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxy carbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-
- 20 C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino
- 25 groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxy carbonyl groups;

(3) when A<sup>5</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkylene group, a

halo(C<sub>1</sub>-C<sub>6</sub>)alkylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>2</sub>-C<sub>6</sub>)alkynylene group, R<sup>10</sup> is a hydrogen atom; a halogen atom; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-

5 C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups,

10 halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein

15 the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy

20 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino

25 groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>8</sup>-R<sup>13</sup> (wherein A<sup>8</sup> is -O-, -S-, -SO- or -SO<sub>2</sub>-, and R<sup>13</sup> is a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group;

a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; or -A<sup>9</sup>-R<sup>14</sup> (wherein A<sup>9</sup> is a (C<sub>1</sub>-C<sub>6</sub>)alkylene group, a halo(C<sub>1</sub>-C<sub>6</sub>)alkylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a halo(C<sub>2</sub>-C<sub>6</sub>)alkenylene group, a (C<sub>2</sub>-C<sub>6</sub>)alkynylene group or a halo(C<sub>3</sub>-C<sub>5</sub>)alkynylene group, and R<sup>14</sup> is a hydrogen atom; a halogen atom; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a

(C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyloxy group; a substituted phenyloxy group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenylthio group; a substituted phenylthio group having one or more same or different substituents selected from halogen atoms,

cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-

5 alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a heterocyclic group; or a

10 substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio

15 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-

20 alkoxycarbonyl groups)]];

the two Xs bonding to the adjacent two carbon atoms constituting the aromatic ring containing Q<sup>1</sup> to Q<sup>4</sup> may bond to each other to form a condensed ring; the condensed ring may have one or more same or different

25 substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups,

(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups  
 5 may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups;

Q<sup>5</sup> is a nitrogen atom or a carbon atom;

Y may be the same or different, and is a halogen atom; a cyano group; a nitro group; a halo(C<sub>3</sub>-  
 10 C<sub>6</sub>)cycloalkyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups,  
 15 (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups  
 20 may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl  
 25 groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-

alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups,  
 di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups  
 may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl  
 groups; or -A<sup>5</sup>-R<sup>10</sup> (A<sup>5</sup> and R<sup>10</sup> each have the same  
 5 definition as given above);

the two Ys bonding to the adjacent two carbon  
 atoms constituting the aromatic ring containing Q<sup>5</sup> may  
 bond to each other to form a condensed ring; the  
 condensed ring may have one or more same or different  
 10 substituents selected from halogen atoms, (C<sub>1</sub>-C<sub>6</sub>)alkyl  
 groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups,  
 halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups,  
 halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups,  
 halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl  
 15 groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, phenyl group,  
 substituted phenyl groups having one or more same or  
 different substituents selected from halogen atoms,  
 cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-  
 C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy  
 20 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio  
 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-  
 alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups,  
 halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino  
 groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl  
 25 groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-  
 alkoxycarbonyl groups, heterocyclic groups, and  
 substituted heterocyclic groups having one or more same  
 or different substituents selected from halogen atoms,

- cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-
- 5 alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups;
- 10 m is an integer of 0 to 5;  
 Z<sup>1</sup> and Z<sup>2</sup> may be the same or different and are each an oxygen atom or a sulfur atom}.
2. An aromatic diamide derivative or a salt thereof according to Claim 1, wherein A<sup>1</sup> is a (C<sub>1</sub>-
- 15 C<sub>8</sub>)alkylene group; a substituted (C<sub>1</sub>-C<sub>8</sub>) alkylene group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)-
- 20 alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups and phenyl group; a (C<sub>3</sub>-C<sub>8</sub>)alkenylene group; a substituted (C<sub>3</sub>-
- 25 C<sub>8</sub>)alkenylene group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio



groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups and phenyl group; a (C<sub>3</sub>-C<sub>8</sub>)alkynylene group; or a substituted (C<sub>3</sub>-C<sub>8</sub>)alkynylene group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups and phenyl group;

in the (C<sub>1</sub>-C<sub>8</sub>)alkylene group, the substituted (C<sub>1</sub>-C<sub>8</sub>)alkylene group, the (C<sub>3</sub>-C<sub>8</sub>)alkenylene group, the substituted (C<sub>3</sub>-C<sub>8</sub>)alkenylene group, the (C<sub>3</sub>-C<sub>8</sub>)-alkynylene group or the substituted (C<sub>3</sub>-C<sub>8</sub>)alkynylene group, any saturated carbon atom may be substituted with a (C<sub>2</sub>-C<sub>5</sub>)alkylene group to form a (C<sub>3</sub>-C<sub>6</sub>)cycloalkane ring; further in the (C<sub>1</sub>-C<sub>8</sub>)alkylene group, the substituted (C<sub>1</sub>-C<sub>8</sub>)alkylene group, the (C<sub>3</sub>-C<sub>8</sub>)alkenylene group or the substituted (C<sub>3</sub>-C<sub>8</sub>)alkenylene group, any two carbon atoms may be combined with an alkylene group or an alkenylene group to form a (C<sub>3</sub>-C<sub>6</sub>)cycloalkane ring or a (C<sub>3</sub>-C<sub>6</sub>)cycloalkene ring;

B is -CO- or -C(=N-OR<sup>4</sup>)- (wherein R<sup>4</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl

- group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group; or a substituted phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group having, on the ring, one or more same or
- 5 different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-
- 10 alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups);
- 15           R<sup>1</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a
- 20 halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)alkylamino group wherein the two alkyl groups may be the same or different; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms,
- 25 cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-

alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups,  
halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino  
groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl  
groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-  
5 alkoxy carbonyl groups; a phenylamino group; a  
substituted phenylamino group having, on the ring, one  
or more same or different substituents selected from  
halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl  
groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups,  
10 halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups,  
halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups,  
halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl  
groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)-  
alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein  
15 the two alkyl groups may be the same or different, and  
(C<sub>1</sub>-C<sub>6</sub>)alkoxy carbonyl groups; a phenyloxy group; a  
substituted phenyloxy group having one or more same or  
different substituents selected from halogen atoms,  
cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-  
20 C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy  
groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio  
groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-  
alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups,  
halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino  
25 groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl  
groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-  
alkoxy carbonyl groups; a phenylthio group; a  
substituted phenylthio group having one or more same or

different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups;

R<sup>1</sup> may bond with A<sup>1</sup> to form a 4- to 7-membered ring which may contain, as a ring-constituting atom(s), one or two same or different atoms selected from oxygen, sulfur and nitrogen atoms;

R<sup>2</sup> and R<sup>3</sup> may be the same or different and are each a hydrogen atom or a (C<sub>1</sub>-C<sub>6</sub>)alkyl group;

Q<sup>1</sup> to Q<sup>4</sup> may be the same or different and are

each a nitrogen atom or a carbon atom which may be substituted with X; X may be the same or different, and is a halogen atom, a nitro group, a (C<sub>1</sub>-C<sub>6</sub>)alkyl group, a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group, a (C<sub>2</sub>-C<sub>6</sub>)alkenyl group, a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group, a (C<sub>2</sub>-C<sub>6</sub>)alkynyl group, a halo(C<sub>2</sub>-C<sub>6</sub>)alkynyl group, a halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy group or a halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio group; the two Xs bonding to the adjacent two carbon atoms constituting the aromatic ring containing Q<sup>1</sup> to Q<sup>4</sup> may bond to each other to form a condensed ring; the condensed ring may have one or more same or different substituents selected from halogen atoms, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups and halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups;

Q<sup>5</sup> is a nitrogen atom or a carbon atom;

Y may be the same or different when it is more than one, and is a halogen atom; a cyano group; a nitro group; a halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl

groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)-alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a heterocyclic group; a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; or -A<sup>5</sup>-R<sup>10</sup> (A<sup>5</sup> and R<sup>10</sup> each have the same definition as given in Claim 1);

the two Ys bonding to the adjacent two carbon atoms constituting the aromatic ring containing Q<sup>5</sup> may bond to each other to form a condensed ring; the condensed ring may have one or more same or different substituents selected from halogen atoms, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, phenyl group, substituted phenyl groups having one or more same or different substituents selected from halogen atoms,

- cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-
- 5 alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups, heterocyclic groups, and
- 10 substituted heterocyclic groups having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio
- 15 groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-
- 20 alkoxycarbonyl groups;

m is an integer of 0 to 5;

Z<sup>1</sup> and Z<sup>2</sup> are each an oxygen atom.

3. An aromatic diamide derivative or a salt thereof according to Claim 2, wherein A<sup>1</sup> is a (C<sub>1</sub>-C<sub>8</sub>)-
- 25 alkylene group; a substituted (C<sub>1</sub>-C<sub>8</sub>) alkylene group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-

- C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, (C<sub>1</sub>-C<sub>6</sub>)-alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups and phenyl group; a (C<sub>3</sub>-C<sub>8</sub>)alkenylene group; a substituted (C<sub>3</sub>-C<sub>8</sub>)alkenylene group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups and phenyl group; a (C<sub>3</sub>-C<sub>8</sub>)alkynylene group; or a substituted (C<sub>3</sub>-C<sub>8</sub>)alkynylene group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups and phenyl group;

in the (C<sub>1</sub>-C<sub>8</sub>)alkylene group, the substituted (C<sub>1</sub>-C<sub>8</sub>)alkylene group, the (C<sub>3</sub>-C<sub>8</sub>)alkenylene group, the substituted (C<sub>3</sub>-C<sub>8</sub>) alkenylene group, the (C<sub>3</sub>-C<sub>8</sub>)-



alkynylene group or the substituted (C<sub>3</sub>-C<sub>8</sub>)alkynylene group, any saturated carbon atom may be substituted with a (C<sub>2</sub>-C<sub>5</sub>)alkylene group to form a (C<sub>3</sub>-C<sub>6</sub>)cycloalkane ring; further in the (C<sub>1</sub>-C<sub>8</sub>)alkylene group, the substituted (C<sub>1</sub>-C<sub>8</sub>) alkylene group, the (C<sub>3</sub>-C<sub>8</sub>)alkenylene group or the substituted (C<sub>3</sub>-C<sub>8</sub>) alkenylene group, any two carbon atoms may be combined with an alkylene group or an alkenylene group to form a (C<sub>3</sub>-C<sub>6</sub>)cycloalkane ring or a (C<sub>3</sub>-C<sub>6</sub>)cycloalkene ring;

- 10           B is -CO- or -C(=N-OR<sup>4</sup>)- (wherein R<sup>4</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>3</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)alkynyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group; or a substituted phenyl(C<sub>1</sub>-C<sub>4</sub>)alkyl group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups);

R<sup>1</sup> is a hydrogen atom; a (C<sub>1</sub>-C<sub>6</sub>)alkyl group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group; a (C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group; a (C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a

halo(C<sub>3</sub>-C<sub>6</sub>)cycloalkyl group; a (C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy group; a (C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio group; a mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino group; a di(C<sub>1</sub>-C<sub>6</sub>)alkylamino group wherein the two alkyl groups may be the same or different; a phenyl group; a substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenylamino group; a substituted phenylamino group having, on the ring, one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)alkoxycarbonyl groups; a phenyloxy group; a substituted phenyloxy group having one or more same or

different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a phenylthio group; a substituted phenylthio group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups; a heterocyclic group; or a substituted heterocyclic group having one or more same or different substituents selected from halogen atoms, cyano group, nitro group, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups,

halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino groups wherein the two alkyl groups may be the same or different, and (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl groups;

- 5                   R<sup>1</sup> may bond with A<sup>1</sup> to form a 4- to 7-membered ring which may contain, as a ring-constituting atom(s), one or two same or different atoms selected from oxygen, sulfur and nitrogen atoms;

- R<sup>2</sup> and R<sup>3</sup> may be the same or different and are  
10 each a hydrogen atom or a (C<sub>1</sub>-C<sub>6</sub>)alkyl group;

- Q<sup>1</sup> to Q<sup>4</sup> may be the same or different and are each a carbon atom which may be substituted with X; X may be the same or different when it is more than one, and is a halogen atom, a nitro group, a (C<sub>1</sub>-C<sub>6</sub>)alkyl  
15 group, a halo(C<sub>1</sub>-C<sub>6</sub>)alkyl group, a (C<sub>2</sub>-C<sub>6</sub>)alkenyl group, a halo(C<sub>2</sub>-C<sub>6</sub>)alkenyl group, a (C<sub>2</sub>-C<sub>6</sub>)alkynyl group, a halo(C<sub>2</sub>-C<sub>6</sub>)alkynyl group, a halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy group or a halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio group; the two Xs bonding to the adjacent two carbon atoms constituting the aromatic  
20 ring containing Q<sup>1</sup> to Q<sup>4</sup> may bond to each other to form a condensed ring; the condensed ring may have one or more same or different substituents selected from halogen atoms, (C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups,  
25 (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups and halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups;

$Q^5$  is a nitrogen atom or a carbon atom;

Y may be the same or different when it is more than one, and is a halogen atom; a  $(C_1-C_6)$ alkyl group; a halo $(C_1-C_6)$ alkyl group; a  $(C_1-C_6)$ alkoxy group; a  
 5 halo $(C_1-C_6)$ alkoxy group; a  $(C_1-C_6)$ alkylthio group; a halo $(C_1-C_6)$ alkylthio group; a  $(C_1-C_6)$ alkylsulfinyl group; a halo $(C_1-C_6)$ alkylsulfinyl group; a  $(C_1-C_6)$ alkylsulfonyl group; a halo $(C_1-C_6)$ alkylsulfonyl group; a halo $(C_1-C_6)$ alkoxy halo $(C_1-C_6)$ alkoxy group; a phenyl group; a  
 10 substituted phenyl group having one or more same or different substituents selected from halogen atoms, cyano group, halo $(C_1-C_6)$ alkyl groups, halo $(C_1-C_6)$ alkoxy groups, halo $(C_1-C_6)$ alkylthio groups, halo $(C_1-C_6)$ -alkylsulfinyl groups and halo $(C_1-C_6)$ alkylsulfonyl  
 15 groups; a phenyloxy group; a substituted phenyloxy group having one or more same or different substituents selected from halogen atoms, cyano group, halo $(C_1-C_6)$ -alkyl groups, halo $(C_1-C_6)$ alkoxy groups, halo $(C_1-C_6)$ -alkylthio groups, halo $(C_1-C_6)$ alkylsulfinyl groups and  
 20 halo $(C_1-C_6)$ alkylsulfonyl groups; a pyridyloxy group; or a substituted pyridyloxy group having one or more same or different substituents selected from halogen atoms, cyano group, halo $(C_1-C_6)$ alkyl groups, halo $(C_1-C_6)$ alkoxy groups, halo $(C_1-C_6)$ alkylthio groups, halo $(C_1-C_6)$ -  
 25 alkylsulfinyl groups and halo $(C_1-C_6)$ alkylsulfonyl groups;

the two Ys bonding to the adjacent two carbon atoms constituting the aromatic ring containing  $Q^5$  may

bond to each other to form a condensed ring; the condensed ring may have one or more same or different substituents selected from halogen atoms; (C<sub>1</sub>-C<sub>6</sub>)alkyl groups; halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups; (C<sub>1</sub>-C<sub>6</sub>)alkoxy groups; halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups; (C<sub>1</sub>-C<sub>6</sub>)alkylthio groups; halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups; (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups; halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups; (C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups; halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups; phenyl group; and substituted phenyl groups having one or more same or different substituents selected from halogen atoms, halo(C<sub>1</sub>-C<sub>6</sub>)alkyl groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkoxy groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylthio groups, halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl groups and halo(C<sub>1</sub>-C<sub>6</sub>)alkylsulfonyl groups;

m is an integer of 1 to 5;

Z<sup>1</sup> and Z<sup>2</sup> are each an oxygen atom.

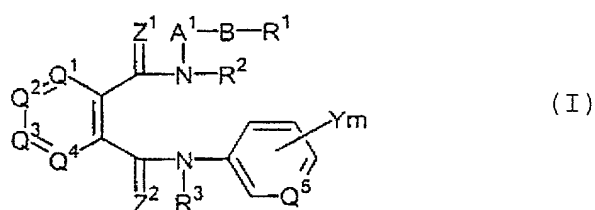
4. An agrohorticultural composition characterized by containing, as an effective ingredient, an aromatic diamide derivative or a salt thereof according to any of Claims 1 to 3.

5. An agrohorticultural composition according to Claim 4, which is an insecticide.

6. A method for using an agrohorticultural composition according to Claim 4 or 5, characterized by applying the agrohorticultural composition to a target crop or soil in an effective amount to protect the crop or soil from pests.

## ABSTRACT

Aromatic diamide derivative represented by  
 the general formula (I) or a salt thereof and  
 agricultural/horticulatural composition containing the  
 5 same as the active ingredient,



wherein A<sup>1</sup> represents alkylene, alkenylene or  
 alkynylene; B represents, CO- or -C(=N-OR<sup>4</sup>)- (wherein R<sup>4</sup>  
 represents H, etc.); R<sup>1</sup> to R<sup>3</sup> represent each H, etc.; Q<sup>1</sup>  
 to Q<sup>5</sup> represent each N or carbon; Y represents halogeno,  
 10 etc.; m is from 0 to 5; and Z<sup>1</sup> and Z<sup>2</sup> represent each O  
 or S.

E5544-057\*

**RULE 63 (37 C.F.R. 1.63)**  
**DECLARATION AND POWER OF ATTORNEY FOR UTILITY OR DESIGN PATENT APPLICATION IN THE**  
**UNITED STATES PATENT AND TRADEMARK OFFICE**

[ ] Declaration Submitted with Initial Filing or [ ] Declaration Submitted after Initial Filing (surcharge 37 CFR 1.16 (e) required)

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the **INVENTION ENTITLED**

"AROMATIC DIAMIDE DERIVATIVE OR SALT THEREOF, AGROHORTICULTURAL COMPOSITION AND METHOD FOR USE THEREOF"

the specification of which is:

[ ] attached hereto

OR

[X] was filed on (MM/DD/YYYY) September 22, 2000 As United States Application Number (Attorney Docket No. \_\_\_\_\_) or PCT International Application No. PCT/JP00/06514 and was amended on February 2, 2001 (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose all information known to me to be material to patentability as defined in 37 C.F.R. 1.56 including for continuation-in-part application, material information which becomes available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international Application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or any PCT international application having a filing date before that of the application on which priority is claimed.

**PRIOR FOREIGN APPLICATION(S)**

Priority Not Claimed

Certified Copy Attached?

Number	Country	Foreign Filing Date (MM/DD/YYYY)	Yes	No
1-270582	Japan	September 24, 1999	[ ]	[ ]

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional Application(s) listed below.

**PRIOR U.S. PROVISIONAL(S)**

Application No. (series code/serial no.) Filing Date (MM/DD/YYYY)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the registered practitioners represented by **Customer No.: 20736** to prosecute this application and transact all business in the U.S. Patent and Trademark Office in connection therewith. Direct all correspondence to **Manelli Denison & Selter PLLC at Customer No.: 20736**.

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MDS Jan 2001



ESS44-05(1#)

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E5544-05 (F)

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First \_\_\_\_\_ Middle Initial \_\_\_\_\_ Family Name \_\_\_\_\_ Country of Citizenship \_\_\_\_\_  
Residence (City) \_\_\_\_\_  
Post Office Address (Include Zip Code) \_\_\_\_\_

13. INVENTOR'S SIGNATURE: \_\_\_\_\_ Date \_\_\_\_\_  
Inventor's Name (typed) \_\_\_\_\_  
First \_\_\_\_\_ Middle Initial \_\_\_\_\_ Family Name \_\_\_\_\_ Country of Citizenship \_\_\_\_\_  
Residence (City) \_\_\_\_\_  
Post Office Address (Include Zip Code) \_\_\_\_\_

14. INVENTOR'S SIGNATURE: \_\_\_\_\_ Date \_\_\_\_\_  
Inventor's Name (typed) \_\_\_\_\_  
First \_\_\_\_\_ Middle Initial \_\_\_\_\_ Family Name \_\_\_\_\_ Country of Citizenship \_\_\_\_\_  
Residence (City) \_\_\_\_\_  
Post Office Address (Include Zip Code) \_\_\_\_\_

15. INVENTOR'S SIGNATURE: \_\_\_\_\_ Date \_\_\_\_\_  
Inventor's Name (typed) \_\_\_\_\_  
First \_\_\_\_\_ Middle Initial \_\_\_\_\_ Family Name \_\_\_\_\_ Country of Citizenship \_\_\_\_\_  
Residence (City) \_\_\_\_\_  
Post Office Address (Include Zip Code) \_\_\_\_\_

16. INVENTOR'S SIGNATURE: \_\_\_\_\_ Date \_\_\_\_\_  
Inventor's Name (typed) \_\_\_\_\_  
First \_\_\_\_\_ Middle Initial \_\_\_\_\_ Family Name \_\_\_\_\_ Country of Citizenship \_\_\_\_\_  
Residence (City) \_\_\_\_\_  
Post Office Address (Include Zip Code) \_\_\_\_\_